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### BASOPHILIC STIPPLING OF THE RED CORPUSCLES WITH SPECIAL REFERENCE TO ITS OCCURRENCE DURING CHRYSOTHERAPY.

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Sydney.

THE occurrence of punctate basophilia in the circulating blood after gold injections was first noted by Griffith and Race in 1935.<sup>1</sup> Owing to the difficulty, in some cases in which gold therapy is producing toxic reactions, of judging whether it is safe to proceed with the treatment, we have investigated a small series of cases in an attempt to discover whether the degree of basophilic stippling of the red cells present in the circulating blood bears any relation to the degree of toxicity. Of twenty cases investigated after injections of "Myocrisin" in varying amounts, in every one some degree of basophilic stippling of the red cells was found.

#### TECHNIQUE.

Films were collected and stained within a few hours of collection. Early in this work it was found that if films were kept overnight the stippling was hard to demonstrate and could easily be missed altogether, whereas in films stained soon after collection stippling was obvious. Leishman stain was used throughout, and we found that it was necessary to have the films stained more blue than usual to demonstrate the stippling. This has been noted by other workers, and it is of great practical importance; a film stained the conventional rose pink may fail altogether to show the stippling, whereas in a film collected and stained at the same time, but with the blue instead of the pink predominating, many stippled cells may be found.

In each film 20,000 red corpuscles were examined, and the number of stippled cells was noted and expressed as the number per million.

#### DETAILS OF BLOOD EXAMINATIONS.

The cases of rheumatoid arthritis investigated were divisible into two main types, namely, those in which sweating and clammy cyanotic hands were present, and those in which the skin was dry and normal and no sweating or cyanosis was present. The blood sedimentation rate was estimated by the Westergren method and tube, the reading being made at sixty minutes.

These two groups could be further divided into other groups, but for the purpose of this article, the two groups suffice. No mention is made here of the endocrine dysfunctions which may or may not account for the dry skin and other features observed in some cases.

Some of the cases were acute, the temperature being elevated and pronounced emaciation being present, as in Case II and to a lesser degree Case XV. In Case VIII the condition was acute, dryness of the skin, pronounced hypotonicity and emaciation being present, whilst in others the condition was subacute of chronic and of varying severity.

#### LITERATURE CONCERNING PUNCTATE BASOPHILIA.

The following is a review of the literature on the subject of punctate basophilia.

#### Occurrence of Punctate Basophilia.

##### Basophilia in Normal People.

Trautmann,<sup>2</sup> examining healthy adults, found up to 100 cells per million showing punctate basophilia; in an occasional person more cells were affected. Schilling,<sup>3</sup> who used four blood tests, besides examinations which included the temperature, the weight and subjective data, before regarding a person as healthy, was of the opinion that practically always other blood changes were present if punctate basophilia of the coarse type was seen even in the smallest number of cells, and that affected persons, although considered healthy, were subjects of latent disease.

Davidson<sup>(4)</sup> states that stippled cells are never found in normal blood and are therefore an expression of toxic damage to the blood-forming tissues.

Brown<sup>(5)</sup> reports that in blood smears from 55 apparently normal persons, no evidence of stippled cells was found in any specimen.

Mayers<sup>(6)</sup> in an examination of blood films from 250 normal persons, found one with one stippled cell.

Kogan and Smirnowa<sup>(7)</sup> working with men not in contact with lead, found that there was not one instance of stippled cells without anaemia.

Badham<sup>(8)</sup> states that punctate basophilia is not found in the blood of normal persons in Sydney.

McDonald<sup>(9)</sup> quotes Duhig as having found punctate basophilia in 43% of 100 children, and states that the bulk of these children were entirely free from any manifestation which could be considered, however remotely, as due to lead poisoning. This author also draws attention to the fact that with ordinary stains the method of searching for punctate basophilia is by no means foolproof, and that different reports may be received from different persons on the examination of blood taken from the same patient within the space of a few days.

Price Jones<sup>(10)</sup> notes that basophilic stippling in healthy persons is a well-established fact.

#### *Basophilia in the Fetus and Infant.*

Naegeli<sup>(11)</sup> demonstrated basophilic stippling in all animal embryos and also in humans; in certain stages of development up to 70% of the red cells showed the phenomenon. In the early phases of embryonic life, punctate basophilia is absent; afterwards, according to Ferrata, it is present in all animals in large numbers until the first generation of red cells loses their nuclei. In later embryonic life it may be scanty or absent.

Kuschljanskaja, working under Naegeli, showed<sup>(12)</sup> that the blood-building organs contained more stippled cells than the circulating blood, and that these cells gradually disappeared with maturity.

Von Stark<sup>(13)</sup> investigated animal and human embryos. He found punctate basophilia most pronounced in the middle period of embryonal life and present in megablasts and normoblasts, as also in non-nucleated erythrocytes, more frequently in the last mentioned.

König<sup>(14)</sup> found punctate basophilia in the cells of newborn infants, as also did Hawes.<sup>(15)</sup>

#### *Basophilia in Disease After the Taking of Drugs et cetera.*

Although lead absorption is the best known cause of basophilic stippling, it is by no means specific. Punctate basophilia is frequently found in the blood of patients with many forms of anaemia and in many diseases even when anaemia is not present. How easily stippling may occur is shown by its appearance after the ingestion of haemoglobin-containing substances, and even after the eating of *Blutwurst* (Naegeli).

Stickl<sup>(16)</sup> was unable to confirm Naegeli's finding of stippled cells after the ingestion of *Blutwurst* after an eight day experiment on himself, during which his diet consisted almost exclusively of this substance. Stickl also considered that the appearance of basophilic stippling in the clinically healthy was dependent on special biological conditions—an opinion shared by Naegeli.

Volk<sup>(17)</sup> with a daily intake of one-quarter pound of *Blutwurst*, after ten days was able to demonstrate finely granulated stippled cells in his blood. Grawitz (quoted by Volk) mentions that in the case of anemic people when the marrow is actively working, punctate basophilia is more easily produced than in healthy people, and likewise that the ease of production is manifested more in women than in men. Volk was able to produce punctate basophilia in normal subjects by injections of blood.

Schwarz and Hefke<sup>(18)</sup> were able to demonstrate stippled cells in the blood of a subject after the ingestion of *Blutwurst*, when previously none had been demonstrable.

Gastro-intestinal haemorrhage has been noted by many authorities as a cause of cell stippling, owing to the absorption of the products of haemoglobin. The following case is of interest in this respect.

A female patient, aged forty years, was admitted to the Mater Misericordiae Hospital, North Sydney, after a severe haematemesis. A routine blood count gave the following information: the red blood corpuscles numbered 1,660,000 per cubic millimetre and the haemoglobin value was four grammes per centum. Examination of the red cells revealed some microcytosis without macrocytosis and numerous polychromatic corpuscles, and the number of cells showing basophilic stippling was 8,000 per million. The stippling was of the coarse and fine varieties. The white corpuscles numbered 6,600 per cubic millimetre; 85% were neutrophilic cells, of which fourteen were band forms, 11% were lymphocytes, 3% were monocytes and 1% were basophile cells. The patient belonged to blood group O.

Eight days after a blood transfusion the red corpuscles numbered 2,450,000 per cubic millimetre and the haemoglobin value was 6.9 grammes per centum and some of the red corpuscles still showed basophilic stippling, although the number had dropped considerably.

In anaemia with sepsis, the occurrence of punctate basophilia is common when the bone marrow is active. The following case shows this well.

A female patient, aged twenty-four years, was admitted to the Mater Misericordiae Hospital three weeks after confinement, with a daily temperature up to 101° F. The clinical diagnosis was mild streptococcal sepsis with anaemia. A blood count gave the following information. The red corpuscles numbered 2,550,000 per cubic millimetre and the haemoglobin value was 6.4 grammes per centum. Numerous polychromatic forms were present, and cells showing punctate basophilia numbered 12,000 per million. Some small red corpuscles were present, but no megalocytosis was found. The white cells numbered 4,800 per cubic millimetre; 45% were neutrophilic cells, of which eleven were band forms, 37% were lymphocytes, 10% were monocytes, 4% were eosinophilic cells and 1% were basophilic cells. One week later the red corpuscles numbered 2,860,000 per cubic millimetre, and the punctate basophilia, although still present, was less in amount. Eight days later the red cells numbered 3,050,000 per cubic millimetre, and only a few cells showed basophilic stippling.

Volk notes that in all the conditions in which basophilic stippling is present in large numbers of cells, there is an increase in the destruction of the red cells in the blood stream with an actively reacting marrow.

We have seen basophilic stippling in the blood in endocarditis, in streptococcal infections of the throat especially after treatment with "Prontosil", and also in mild chronic streptococcal infections without rheumatism or endocarditis.

In leucosis and pernicious anaemia, basophilic stippling may be an obvious feature of the blood film, or may be absent. Nelson, Lockwood and Mackay<sup>(19)</sup> report a case of pernicious anaemia in which stippled cells numbered 20,000 per million red cells. In the true haemolytic anemias, in which polychromatic corpuscles may form up to 70% of the total red cells, basophilic stippling in the Leishman-stained films is not usually a prominent feature. Naegeli notes its occurrence in chlorosis especially after iron therapy, and we frequently see it in routine blood counts in post-haemorrhagic conditions, whether the anaemia is due to haemorrhage from piles, to gastro-intestinal conditions or to uterine bleeding.

H. Lehmann<sup>(20)</sup> was able to produce basophilic stippling in the cells of guinea-pigs by exposure to excessive humid heat.

Schmidt<sup>(21)</sup> was unable to find abnormal numbers of stippled cells in the blood of stokers during a voyage around the coast of Africa when the heat was excessive.

Saleck<sup>(22)</sup> noticed the presence of fine basophilic stippling and an increase in the number of polychromatic cells in the blood of cement workers; but he did not believe that the picture was similar to that found in lead poisoning, as the coarse type of granule was not seen.

H. Lehmann<sup>(23)</sup> in an investigation with Portland cement workers at Thuringer, found that 80% of the workers had more than 200 per million stippled cells in their blood, and that the number increased with the number of years during which the men had been engaged in their occupation. Schmidt<sup>(24)</sup> did not agree with these findings in cement workers.

Von Stark notes that stippling occurs in all varieties of anaemia in childhood, and that it is of no diagnostic or prognostic importance. We have noticed that it is

sometimes a pronounced feature in *erythroblastosis foetalis*, but it may be absent.

Mayes notes that stippling occurs in some infectious diseases of childhood, especially in pneumonia.

Papsdorf<sup>(28)</sup> was able to produce basophilic stippling of cells in the peripheral blood of guinea-pigs by poisoning them with zinc or silver, but could not find it in the bone marrow. Bismuth injections also produced the stippling, but not chromium injections.

Derra,<sup>(29)</sup> in a most interesting series of observations, found basophilic stippling of the red cells in both humans and animals after bismuth injections. He did not consider that its appearance warranted any interference with the injections unless stippled cells were present in extraordinarily high numbers; he regarded stippling as a constant symptom, and believed its duration and intensity to depend on the varying regenerative capacity of the bone marrow provided normal medicinal doses were used. When hæmatopoiesis was normal the number of cells showing punctate basophilia was least.

Loewenthal<sup>(27)</sup> observed stippling after the exhibition of zinc chloride and cerium sulphate.

Lehmann<sup>(28)</sup> produced stippling with copper and mercury sulphide.

Bonanni<sup>(30)</sup> found stippling in sulphonal poisoning.

During a routine blood count we observed stippling in the blood of one patient with a fracture of the femur treated by the insertion of a Smith-Petersen nail. The number of cells showing the stippling was 9,000 per million. The patient was anæmic and died a few weeks later. At the time of observation we were inclined to regard the nail as a cause for the stippling; but Schmidt<sup>(30)</sup> observed stippling in a case of severe fracture with hæmorrhage.

K. H. Lehmann<sup>(31)</sup> was able to produce stippling of cells in laboratory animals simply through loss of blood from a vein. He mentions that the fate of the granules is still uncertain, and also that according to his investigations stippling disappears quickly, in about twenty hours, from the clamped ear.

Hamilton<sup>(32)</sup> noted that basophilic stippling occurred after aniline poisoning.

F. Schmidt<sup>(33)</sup> observed stippling of cells in cancerous cachexia and in intestinal putrefaction or sepsis.

It is possible that any disorder, even a relatively mild one causing little or no disturbance to the health of the person concerned, but giving rise to slightly increased blood regeneration, may produce punctate basophilia providing a circulating toxin is present, capable of causing a disturbance of the colloidal properties of the young erythrocytes. The occurrence of punctate basophilia in a person sufficiently ill to require a blood count, and without anæmia, should always lead to inquiries as to the possible ingestion of any heavy metal either accidentally or therapeutically.

#### The Occurrence of Basophilia in Bone Marrow.

Pappenheim<sup>(34)</sup> noted that cells showing basophilic stippling rarely occurred in the bone marrow.

Naegeli<sup>(35)</sup> states that cases exist in which no stippled cells are found in the bone marrow, although during life basophilic stippling is present in the blood. He has also noticed that before the subject's death, stippling may be absent even from the blood, so that a negative finding in the bone marrow is not surprising; however, observations have been made especially in aplastic anæmia, in which the blood cells did not show basophilic stippling, but it was present in the bone marrow.

Seifert and Arnold<sup>(36)</sup> killed guinea-pigs poisoned with lead at different time intervals and examined the bone marrow, and although basophilic stippling was a prominent feature of the circulating blood they were unable to demonstrate it in the bone marrow. Speransky and Skillianskaja<sup>(37)</sup> reached the same conclusion.

Price Jones asserts that punctate basophilia is present in human bone marrow, and it is interesting to note that Segerdahl<sup>(38)</sup> frequently found red corpuscles showing punctate basophilia in marrow obtained at sternal puncture from patients with pernicious anæmia.

Blair Bell<sup>(39)</sup> examined the bone marrow from animals which had died in the laboratory from lead poisoning, and in no case did he find stippled cells.

Whitby and Britton<sup>(40)</sup> believe that the toxin causing the stippling acts rather on the cells of the marrow than on the circulating reticulocytes.

#### Relation of Punctate Basophilia to Polychromasia and Reticulum (Substantia Granulofilamentosa).

In any discussion on this subject it is necessary to remember that the red corpuscle is a highly complicated colloidal system.

Hawes in 1909, drew the following conclusions from his studies on young erythrocytes: (i) The conditions known as polychromatophilia and stippling of the red cells are one and the same, differing only in form, and are both manifestations of the same process. (ii) The two above-mentioned conditions, as seen in the fixed specimen, are shown by more delicate methods of vital staining as reticulated cells, the greater percentage of these forms over the polychromatic and stippled cells being due to the greater delicacy of the method of staining.

Whitby and Britton (1933) believed that both stippling and polychromasia are manifestations of reticulation. They could find no difference in the reticulum of the polychrome cells from those which appear as stippled in the Leishman-stained films, and they considered that stippling was probably only a minor physico-chemical change which would be more in evidence if stains other than the Romanowsky stains (which are not sensitive detectors of stippling) were used as a routine measure.

Davidson (1930), discussing the significance of polychromasia, punctate basophilia and reticulation, states that all three are direct evidence of bone marrow activity, and that while all three are closely allied (since they represent different aspects of the same substance—that is, the basophilic material of the young erythrocytes), punctate basophilia is an aspect seen only in pathological conditions and is an indication of pathological alteration as well as of immaturity.

Herz<sup>(41)</sup> regarded reticulation and polychromasia as substantially identical, but strongly separated punctate basophilia from these two.

Gawrilow<sup>(42)</sup> emphasizes the fact that the ground substance of an immature erythrocyte is in the cell body in a dispersed state and minutely divided; owing to the action of fixing and staining reagents, a coagulation of this dispersed colloid substance occurs whereby it becomes visible, and different methods of coagulation can produce all morphological pictures of this substance from polychromasia to reticulation. Gawrilow does not believe that we possess sufficient evidence at present to identify polychromasia or reticulum with punctate basophilia.

The interesting work of Mommmsen<sup>(43)</sup> is connected with this subject. He has proved that the electrical charge of the absorbing substance plays a dominant role in the reception of the stain. With a negative charge, basic stains are retained because they contain a positive radicle and *vice versa*. The isoelectric point of the mature erythrocyte is at about pH 6.5, that of the immature erythrocyte is at pH 5.5. The process of maturity is associated with a lessening of the charge and a change of the isoelectric point towards the alkaline side.

Bruckner<sup>(44)</sup> noted that the basophilic substance in its native state was a highly labile body in a colloidal state, and believed that the different forms of basophilic substance as they appear in the stained preparation were artificial products. Bruckner<sup>(45)</sup> later believed that the rate of drying of the cells exerted an influence on the relation of the number of polychromatic erythrocytes to the number of erythrocytes showing punctate basophilia.

Cooke<sup>(46)</sup> believed that he could produce punctate basophilia, polychromasia and reticulation in any erythrocyte by means of a solution of benzidine, hydrogen peroxide and water, and thought that the three conditions, when revealed by the usual staining methods, would point to an increased permeability or to a defect in the lipid envelopment of the erythrocyte rather than to immaturity, although there might be and probably was a close relation-



ship between punctate basophilia, diffuse polychromasia and reticulation and immaturity.

It is now accepted by the majority of hæmatologists that the presence of basophilic substance in an erythrocyte is a sign of immaturity. Naegeli regards it as proven that erythrocytes showing punctate basophilia are products of an embryonal or pathological reaction of the bone marrow, and that they are a sign of pathological or embryonal regeneration.

Brookfield<sup>(47)</sup> concluded from his work that stippled cells were immature cells (reticulocytes or polychromastippled cells) altered by the toxic action of lead.

Schilling<sup>(48)</sup> believed that true polychromasia, reticulation and true punctate basophilia were substantially identical morphological manifestations of a basic immature substance.

#### Origin of the Stippling.

Grawitz (quoted by P. Schmidt) was the leader of the school which regarded the stippling as a degeneration product of the protoplasm of the red blood cells. At this time the association of the appearance with immaturity was not recognized. The point which has aroused controversy is whether the stippling originates in the protoplasm or in the nucleus.

Pappenheim regards the cytoplasm as consisting of two parts, the spongioplasm which is basophile, and the paraplasm which contains the hæmoglobin and is acidophile. As the cell matures, the spongioplasm becomes less while the paraplasm increases.

Schilling believes punctate basophilia to result from an immature basic protoplasmic substance of the erythrocyte, whose appearance is connected with pathological or embryonic physiological disturbance of blood formation or of the protoplasmic composition.

Koch<sup>(49)</sup> believes that he has proved the karyogenic (nuclear) origin of the basophilic stippling in lead poisoning.

Sappington<sup>(50)</sup> was able to produce severe anaemia in rabbits. He showed that up to 80% of the erythrocytes contained mitochondria, whereas none were seen in the blood of normal rabbits, and he concluded that the study of mitochondria would be a valuable clinical method for the detection of blood regeneration. Key concludes from his work that the basophilic substance is not of nuclear origin, that it is a protoplasmic constituent but is not of mitochondrial nature; he does not think that the presence of mitochondria in young erythrocytes has been satisfactorily demonstrated.

The earlier view of some workers that the stippling in cells in lead poisoning was precipitated lead, has been disproved.

#### Production of Stippling in Vitro.

Basophilic stippling of the red cells has never been produced by lead outside the body. Brookfield notes that blood containing erythrocytes, after being treated with lead preparations and standing for several hours, contained no stippled cells.

Binachini (quoted by Brookfield) poisoned rabbits with aniline until large numbers of polychromatic cells appeared in the blood. Smears fixed immediately with methyl alcohol and stained with Giemsa stain showed practically no stippled cells; but smears kept in a moist chamber for twenty-four hours or more after fixation and staining showed typical stippled cells.

Key<sup>(51)</sup> by fixing films containing reticulocytes in osmic acid vapour so that one part was fixed and another unfixed, was able to produce with vital staining fragments resembling stippling on the borderline where fixation was only partial.

Schilling, by means of diluted alkalis, produced appearances resembling basophilic stippling in the blood of guinea-pigs containing many polychromatic cells.

#### Chemical Composition of Basophilic Substance.

Chemically the *substantia granulofilamentosa* or reticulum, according to the investigations of Pappenheim and other hæmatologists, is a protein-like constituent of the protoplasm which contains partly free fatty acids.

Seyfarth<sup>(52)</sup> showed that the vital staining substance did not contain characteristic nuclear constituents which

could be proved chemically as such. He also noted that the substance was soluble in alkalis, in formalin-containing fluids and in osmic acid, and therefore in preparations fixed in these fluids no well-defined structure could be shown, but only the substance diffusely distributed as a polychromatic manifestation.

Gawrilaw notes that the lipid theory of the chemical nature of the vital staining substance does not agree with a large number of facts, especially as it is not possible to extract the hypothetical lipoids with any arbitrary lipid solvent and thus to destroy the basophilia. He thinks that a series of considerations, especially the labile state of the vital substance, allows the assumption that this substance is of protein nature having the structure of a complicated lipo-protein, of which the main part is formed of a material of lipid character partly combined chemically with a protein.

#### Discussion.

Examination of these twenty patients taken at random from a series undergoing chrysotherapy revealed basophilic stippling in the blood of every one, irrespective of the age or sex of the patient or of the variety of arthritis.

The highest count occurred in Case II after only four doses of 0.05 gramme, and the patient's clinical condition became much worse and he refused further injections of gold. Undoubtedly the clinical reaction ran parallel with the toxicity as judged by the degree of punctate basophilia. The condition was acute, the patient had lost a lot of weight and was in a state of malnutrition, and he also had a daily elevation of temperature. The blood sedimentation rate was abnormal, and anaemia was present. It appears that this type of patient is unsuitable for gold therapy and here the result of the blood count with the high number of stippled cells averted a worse reaction. It is interesting to note that no shift of the neutrophile cells was present, and that the number of eosinophile cells was high. There were no clinical signs of allergic diathesis. This patient had hyperacidity, so that this condition does not license the unrestricted use of gold.

This series of cases does not appear to show any relation between the degree of acidity of the stomach and the number of stippled cells present after gold therapy.

Many of the patients who had a dry skin and only slightly raised blood sedimentation rate proved to be ideal for chrysotherapy, with regard to both the clinical response to treatment and the absence of toxicity as judged by the number of stippled cells. One patient (Case IX) with a high blood sedimentation rate had a dry skin with subcutaneous oedema of the hands and feet, and clinically was the ideal type for gold therapy. She responded remarkably well; but at the end of the second course 1,100 stippled cells per million red cells were counted. This is on the high side; but the patient manifested no clinical sign of toxicity. However, gold treatment was stopped for a short period.

Case VIII was interesting. The patient exhibited emaciation, hypotonicity and extreme dryness of skin. She had lost three stone in weight in four months and was completely crippled; she also suffered from asthma. Mild dermatitis developed after six doses of 0.05 gramme of "Myocrisin", and in her blood 4,600 stippled cells per million were counted—evidence of severe toxicity. Treatment was suspended; but the patient's condition improved under other therapy. It is interesting to note that this patient was also anemic and had no shift of the neutrophile cells in spite of a severe infection. The significance of the eosinophilia is difficult to gauge owing to the asthma.

Since our former paper on chrysotherapy in arthritis we have used only a dose not exceeding 0.05 gramme of "Myocrisin", and we have noticed an absence of serious reactions. We consider, however, that even in small doses gold may be toxic and may lead to disaster especially in the variety of arthritis in which reactions are apt to occur—namely, in the type associated with elevated temperature, sweating, cyanosis and emaciation.



TABLE I.  
Results of Blood Examinations in Twenty Cases of Rheumatoid Arthritis.

Case Number.	Age (Years.)	Sex.	Result of Gastric Analysis.	Red Blood Corpuscles per Cubic Millimetre.	Hemoglobin Value in Grammes per Centum.	White Cells per Cubic Millimetre.	Differential Leucocyte Count. (Percentages.)				Cells Showing Pencil Spinning (per Million Red Cells).	Type of Clinical Condition.	Reaction.	Number of Injections of "Myorfish".	Blood Sedimentation Rate.
							Neutrophils.	Lymphocytes.	Rosinophile Cells.	Monocytes.	Basophile Cells.				
I	50	F.	Hypocidity.	4,140,000	13.1	6,000	72.0	20.0	3.0	5.0	—	Dry skin.	None.	12 doses (0.05 gramme)	—
II	20	M.	Hyperacidity.	3,590,000	10.9	7,400	65.0	15.0	14.0	6.0	—	Infective arthritis, wasting, rise in temperature, cyanosis without swelling.	Made worse by gold and refused further injections.	4 doses (0.05 gramme)	67.0
III	56	F.	Achlorhydria.	4,070,000	10.9	7,800	77.0	15.0	2.0	6.0	—	Normal skin.	None.	12 doses (0.05 gramme)	53.0
IV	60	F.	Hyperacidity.	3,930,000	12.9	8,700	76.0	21.0	2.0	3.0	—	Muscle atrophy.	None.	20 doses (0.05 gramme)	8.0
V	50	M.	Achlorhydria.	4,800,000	16.9	6,600	57.5	30.5	6.0	5.0	1.0	Moist skin and muscle atrophy.	Mild dermatitis.	12 doses (0.05 gramme)	2.5
VI	38	F.	Normoacidity.	4,010,000	11.5	10,300	66.5	25.0	1.5	7.0	—	Sweaty, clammy, blue type.	Albuminuria.	5 doses (0.05 gramme)	37.0
VII	43	F.	Hyperacidity.	3,870,000	12.8	4,200	78.0	10.0	3.0	9.0	—	Dry skin.	None.	12 doses (0.05 gramme)	23.0
VIII	29	F.	Hyperacidity.	3,340,000	8.9	12,200	60.0	13.0	20.0	5.0	—	Dry skin, pronounced atrophy and hypotonicity; asthma for years.	Mild dermatitis, pemphigus.	6 doses (0.05 gramme)	23.0
IX	54	F.	Hyperacidity.	4,250,000	13.1	5,000	59.0	35.0	3.0	3.0	—	Dry skin; pale hands.	None.	24 doses (0.05 gramme)	49.0
X	63	F.	Normal acid.	3,880,000	11.2	6,000	72.0	22.0	2.0	4.0	—	Dry skin; cyanosis of hands.	None.	36 doses.	8.0
XI	36	F.	Achlorhydria.	3,980,000	8.9	6,000	74.0	21.0	3.0	2.0	—	Cold, clammy, sweaty, blue type, cyanosed.	Increased pain and stiffness.	9 doses	21.0
XII	49	F.	Normoacidity.	4,270,000	12.7	6,600	64.0	31.0	1.0	4.0	—	Dry skin.	None.	12 doses (0.05 gramme)	5.0
XIII	58	F.	Achlorhydria.	4,220,000	12.9	6,000	70.0	22.0	2.0	6.0	—	Dry skin.	None.	12 doses (0.05 gramme)	3.0
XIV	58	M.	Normal acid.	3,970,000	12.4	5,200	73.0	18.0	5.0	4.0	—	Dry skin.	None.	3 doses (0.05 gramme)	12.0
XV	45	M.	Hypocidity.	4,060,000	11.5	10,000	68.0	32.0	1.0	9.0	—	Cold, clammy, sweaty, blue type, extreme loss of weight.	None.	8 doses	27.0
XVI	58	F.	Achlorhydria.	4,020,000	12.4	4,000	76.0	16.0	1.0	7.0	—	Dry skin.	Internal hemorrhage after second course.	3 courses	10.0
XVII	70	F.	Hypocidity.	2,500,000	9.0	4,000	77.0	14.0	4.0	5.0	—	Dry skin.	None.	16 injections (0.05 gramme)	11.5
XVIII	63	F.	Hypocidity.	4,140,000	13.0	—	Not recorded	—	—	—	—	Blue and dry skin, almost hypodermic.	None.	12 doses (0.05 gramme)	32.0
XIX	39	F.	Achlorhydria.	4,560,000	11.6	9,800	51.0	42.0	3.0	4.0	—	Dry skin.	None.	12 doses (0.05 gramme)	6.0
XX	38	F.	Achlorhydria.	3,870,000	12.0	6,600	64.0	23.0	6.0	2.0	—	Sweaty, clammy, blue type.	None.	12 doses (0.05 gramme)	5.0

<sup>1</sup> Band forms, 7. <sup>2</sup> No shift. <sup>3</sup> Band forms, 10. <sup>4</sup> Band forms, 10. <sup>5</sup> No shift. <sup>6</sup> Band forms, 10. <sup>7</sup> No shift. <sup>8</sup> No shift. <sup>9</sup> No shift. <sup>10</sup> No shift. <sup>11</sup> No shift. <sup>12</sup> No shift. <sup>13</sup> No shift. <sup>14</sup> No shift. <sup>15</sup> No shift. <sup>16</sup> Band forms, 6.

In Case XI, although the last dose of gold had been given six months previously, the patient's blood still contained 200 stippled cells per million red cells. This patient was of the cold, clammy, cyanotic, sweating type, who generally reacts unfavourably to gold therapy. Basophilic stippling in response to gold therapy appears to be more or less proportional to the severity of the illness, and shows that one must be careful not to overload the reticulo-endothelial system which in many cases is probably already damaged by the original disease. As can be seen from the review of the literature, stippling can be due to many causes, and in a large series of cases, in preliminary blood counts before gold therapy was commenced, it has been observed twice without known cause, except possibly toxæmia presumably due to streptococcal infection. It was not found in the preliminary blood counts in this series of twenty cases.

The clinical value of the stippled cell count is somewhat impaired by the time consumed in the counting of the cells, and also by the fact that small variations in technique can vitiate the count.

We suggest that patients showing severe anæmia, eosinophilia, an increased blood sedimentation rate, a shift of the neutrophile cells to the left, cold, clammy, cyanosed hands or dehydration, should be carefully checked from time to time for stippled cells in their blood, so as to prevent the onset of deleterious reactions. A final word of warning is given about dosage, as the patient in Case II had received only four doses each of 0.05 grammes of "Mycrisin", yet in his blood 6,500 stippled cells per million red cells were counted, and the clinical response was unfavourable.

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# HETEROSPECIFIC PREGNANCY: II. INCOMPATIBILITY OF THE ABO GROUPS.

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IN 1923 Ottenburg<sup>(1)</sup> suggested that an incompatibility between the ABO blood groups of the mother and foetus might result in the birth of a diseased infant. He was, however, unable to produce convincing evidence that such a factor was a major cause of any abnormality. Further attention has recently been paid to the ABO incompatibilities, owing to the stimulus provided by the discovery of the Rh factor and the demonstration of its role in the aetiology of hæmolytic disease of the newborn. Several reports<sup>(2-6)</sup> have incriminated an ABO incompatibility as the aetiological factor.

However, it is known that such incompatibilities are common in pregnancy and that disease of the infant is relatively uncommon. The mere existence of such an incompatibility, therefore, is not evidence that it plays an aetiological role, nor does an increase in titre of the agglutinin concerned indicate that disease of the infant is inevitable. Smith<sup>(4)</sup> has shown that in about 80% of mothers carrying infants whose blood groups were incompatible with agglutinins in the mother's serum, some rise in titre of the agglutinin occurred. In all instances in which such an elevation occurred, the infant was a secretor of the group-specific substances. This fact, combined with the demonstration by Aubert, Boorman and Dodd<sup>(6)</sup> that group A plasma and group B plasma were antigenic, led Smith to conjecture that the group-specific substances passed from the child into the mother's circulation and were responsible for the immunization.

Because this iso-immunization is frequently observed, and because comparatively few of the infants are diseased as a result, other factors must contribute to the causation of the disease in the few. Two problems which require elucidation are, firstly, the factor or factors which determine escape from or affliction with the disease, and secondly, the means of determining the involvement of an ABO incompatibility in a particular case. The writers do not claim to have solved these problems, but believe that the presentation of some relevant facts may assist further investigations.

## Technique of Serum Titration.

Blood obtained by venepuncture was allowed to clot in a centrifuge tube and the serum was separated by centrifugation.

Group A<sub>1</sub>, group A<sub>2</sub> and group B blood was collected from subjects belonging to these blood groups and suspended in normal saline solution so as to form a 1% cell suspension. This was obtained by adding 0.1 millilitre of blood to 5.0 millimetres of saline solution. The cells were used on the day of collection only.

Four drops of the serum to be tested were added to the first and second of a row of tubes by means of a Pasteur pipette held vertically. Four drops of saline solution were then added to the second and subsequent tubes from the same pipette. The second tube now contained eight drops, and after mixing, four drops were transferred to the third tube. The procedure was repeated along the row. Four drops were discarded from the last tube in the row. With the same pipette four drops of the desired cell suspension were added to each tube.

The cells and diluted serum were mixed by shaking the tubes, incubating them for sixty minutes and then examining them microscopically for the presence or absence of agglutination. Microscopic examination gives higher but more constant results than does examination by the naked eye.

## Reports of Cases and Investigations.

CASE I.—The patient had given birth to a normal child in 1941. Her second pregnancy terminated uneventfully on February 10, 1944, with the birth of an apparently

normal infant. However, on the fourth day the infant was noticeably jaundiced. Red cell counts and hæmoglobin estimations were then performed with the results shown in Table I. The infant was found to belong to blood group A and to be Rh-positive, and the mother to belong to blood group O and to be Rh-positive. The mother's serum did not contain agglutinins of the Rh or Hr varieties, but the  $\alpha$  agglutinins were titrated against group A<sub>1</sub> and A<sub>2</sub> red cells on several occasions. The results obtained were as follows: February 13, 1945, 1/256 against A<sub>1</sub> and A<sub>2</sub> cells; February 21, 1/2,048 against A<sub>1</sub> and A<sub>2</sub> cells; March 10, 1/1,024 against A<sub>1</sub> and A<sub>2</sub> cells; March 22, 1/1,024 against A<sub>1</sub> and A<sub>2</sub> cells; April 18, 1/1,024 against A<sub>1</sub> and A<sub>2</sub> cells; June 21, 1/2,048 against A<sub>1</sub> cells and 1/1,024 against A<sub>2</sub> cells. The titre of the  $\beta$  agglutinin was not determined.

TABLE I.  
Results of Hematological Examinations in Five Cases.

Case Number.	Date.	Red Blood Cells per Cubic Millimetre.	Hæmoglobin. (Grammes per Centum.)
I	13.2.45	3.5	12.5
	15.2.45	3.8	12.3
	16.2.45	—	13.2
	26.2.45	3.5	13.5
	27.3.45	3.6	10.7
II	25.2.46	—	14.3
	26.2.46	4.15	13.8
	27.2.46	3.9	12.8
	28.2.46	4.0	13.1
	6.3.46	—	12.1
III	13.2.46	5.26	14.4
	14.2.46	—	13.5
	15.2.46	3.73	12.2
	16.2.46	3.69	12.4
	17.2.46	3.4	11.9
IV	19.2.46	3.15	10.5
	20.2.46	3.63	10.3
	21.2.46	3.42	10.8
	22.2.46	4.25	10.2
	16.2.46	5.0	15.4
V	20.2.46	4.2	13.1
	6.3.46	4.3	12.3
	2.5.46	5.0	14.5
	3.5.46	7.5	19.9

CASE II.—The first pregnancy resulted in the instrumental delivery of an apparently normal child on February 23, 1946. On the third day jaundice became obvious, and a hæmoglobin estimation was made. The results of this and subsequent hematological investigations are shown in Table I. The infant was found to belong to blood group A and to be Rh-positive, and the mother to belong to blood group O and to be Rh-positive. The mother's serum did not act on group O cells of any Rh subgroup, and no evidence of iso-immunization against the Rh factor was obtained. On February 28 the serum agglutinated group A<sub>1</sub> cells when diluted 1 in 32,000, group A<sub>2</sub> cells when diluted 1 in 16,000, and group B cells in a dilution of 1 in 3,000.

CASE III.—The patient's first pregnancy resulted in the birth of a baby on February 12, 1946. On the following day the infant became jaundiced, and although the jaundice was not marked, blood counts were performed with the results shown in Table I. The infant was of blood group A and was Rh-positive, and the mother was of blood group O and Rh-positive. No irregular agglutinins were found in the mother's serum; but on February 21 it agglutinated both group A<sub>1</sub> and group A<sub>2</sub> cells in a dilution of 1 in 4,096 and group B cells in a dilution of 1 in 2,048. On February 28, 1946, the titre against group A<sub>1</sub> and group A<sub>2</sub> cells was the same, but that against group B cells had risen to 1 in 4,096. On this

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occasion serial dilutions of the serum in albumin were mixed with an albumin suspension of group A<sub>1</sub> cells. Agglutination was observed with the serum diluted 1 in 4,096. As the batch of 25% albumin solution used for this purpose was found to agglutinate group A cells spontaneously, it was necessary to absorb it with group A<sub>1</sub> cells as a preliminary to the titration.

**CASE IV.**—The first child of this patient displayed no abnormality at or after birth. The second, born on February 14, 1946, was deeply jaundiced on the second day and remained so for ten weeks. The results of haematological investigations shown in Table I were not indicative of gross anaemia. The infant belonged to blood group A and was found to be Rh-positive. The mother belonged to blood group O and was Rh-positive, and her serum showed no evidence of iso-immunization against the Rh factor. On February 18 the titre of the serum against group A<sub>1</sub> and group A<sub>2</sub> cells was found to be 1 in 1,024 and against group B cells 1 in 512. Saliva obtained from the infant contained the group A polysaccharide, indicating that the child was a "secretor".

**CASE V.**—The patient's first pregnancy resulted in the birth of a healthy child. The second child, born on April 30, 1946, became jaundiced on the third day, but as will be seen from Table I, there was no evidence of anaemia. The mother was found to belong to blood group O and to be Rh-positive (Rh<sub>1</sub> and Rh<sub>2</sub>), and the child belonged to blood group B and was Rh-positive. The mother's serum did not agglutinate any of a large number of group O cells, but on May 3 the titre of the  $\alpha$  agglutinin against group A<sub>1</sub> cells was found to be 1 in 128 and that of the  $\beta$  agglutinin 1 in 1,024.

#### Discussion.

The red cell count of a newly-born infant is said to vary from 6,500,000 to 7,500,000 per cubic millimetre and to fall steadily to 5,000,000 to 5,500,000 at the end of twelve days.<sup>10</sup> On these standards the infants in Cases I to IV inclusive all showed some degree of anaemia shortly after birth. The baby in Case V on the other hand, appears to be normal, although the accuracy of the haematological examinations is open to question. However, a diagnosis of physiological jaundice is justified. The causation of the anaemia in the four cases is the subject of the present investigation. The early onset of the anaemia, its association with jaundice, the absence of sepsis and the subsequent recovery of the infants support the diagnosis of haemolytic anaemia of the newborn. In the great majority of cases this is due to an Rh incompatibility between mother and foetus and the subsequent iso-immunization of the mother. However, such an incompatibility did not exist in any of the cases recorded.

On the other hand, in each of the five cases the infant's ABO group was incompatible with the agglutinins in the mother's serum, and the mother had been immunized by the infant, as is shown by the high titre of the agglutinin concerned. The occurrence of iso-immunization against the A or B agglutinin, unlike iso-immunization against the Rh factor, is not correlated with the incidence of disease in the infant. An ABO incompatibility occurs in 33.9% of all marriages and in 19.5% of all pregnancies (see Appendix). Smith found evidence of iso-immunization in about 80% of cases in which the infant's ABO group was incompatible with the mother's serum. It is clear, therefore, that an ABO incompatibility cannot be incriminated as a cause of anaemia on either clinical or serological evidence alone. However, the association of haemolytic anaemia with such an incompatibility has, in the absence of other possible explanations, led to the belief that iso-immunization from this may be the causative factor.

In the cases under review the degree of iso-immunization was not greater (with the exception of Case II) than that which is sometimes found to occur in heterospecific pregnancies with normal infants—a fact which is not consistent with the findings of Polayes.<sup>11</sup> Moreover, there was no correlation between the titre of the agglutinins and the severity of the disease in the infant. The infant in Case II was not seriously affected, although the titre of the  $\alpha$  agglutinin was high. Therefore, the question is raised why some infants are affected whilst others escape. Smith's findings indicate that the antigenic substance is the extracellular agglutinin found in the serum of the infant, and that affected infants are "secretors". It is believed that this same group-specific substance, or extracellular agglutinin, in the serum of a subject protects the corpuscular elements

from the action of the corresponding agglutinin, if that agglutinin is introduced into the circulation. Because of the frequency of heterospecific ABO pregnancies and the rarity of haemolytic anaemia due to this cause, it is not unreasonable to suppose that the great majority of infants must possess some protective mechanism against the agglutinin concerned. The four cases reported were all relatively mild examples of the disease, and as far as is known, the more severe manifestations of haemolytic disease of the newborn are only rarely due to an ABO incompatibility. This supports the belief that the *fetus in utero* has some protective mechanism against the heterospecific agglutinin. However, if this protection is the presence of the group-specific substance, it is difficult to understand why this substance should frequently exert its antigenic properties and only rarely fail to exert its protective action. It is possible that the affected infants possess less of the group-specific substance than do those infants who escape, and that the lesser amount permits immunization to occur, but is insufficient to protect the foetal red cells against the immune agglutinin. Quantitative measurements on the serum in cases encountered in the future would be desirable. A further conjecture to explain the rare occurrence of the disease is that the placenta is more permeable to the agglutinins in those babies exhibiting signs of the disease. This, however, seems unlikely in view of the finding of Wiener and Silverman<sup>12</sup> that the "index of placental permeability" did not vary greatly in different patients. As the disease became progressively worse after birth in the four cases, and as all four children were breast fed, the role of the agglutinin in the mother's milk cannot be ignored. It is possible that in the cases in which the infant was affected, the agglutinin concerned may have been concentrated to an abnormal degree in the milk, or that it was not readily destroyed in the gastro-intestinal tract of the infant.

A further point of interest is the non-specific increase in titre of the heterologous agglutinin noted in Cases II, III and IV, and its absence in Case V. This increase has been noted by other observers. It is possibly related to the loss of titre of the heterologous agglutinin when some group O sera are absorbed with either group A or group B cells. This latter phenomenon, which is thought to be due to some form of linkage between the  $\alpha$  and  $\beta$  agglutinins in the group O serum, is not regularly observed and appears to be a characteristic of the particular serum 9.

#### Summary.

Four cases of haemolytic disease of the newborn are presented, in which an ABO incompatibility is thought to be the cause of the disease.

The discrepancy between the incidence of disease due to heterospecific ABO pregnancy and the incidence of such pregnancies is discussed.

An ABO incompatibility can be regarded as the factor causing anaemia in the newborn infant only if iso-immunization against the corresponding agglutinin has occurred and if other possible causative factors are absent.

The frequency of ABO incompatibilities in marriage and pregnancy is calculated from the frequency of the blood groups in New South Wales.

#### Acknowledgements.

The writers wish to acknowledge the assistance of Dr. M. Thomas, Dr. M. Heseltine and Dr. E. B. Durie, who supplied details of the clinical histories and haematological investigations and samples of blood for investigation.

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### Appendix.

(R.J.W.)

#### Frequency of ABO Incompatibilities in a Random Selection of Marriages.

The incidence of the blood groups in 30,000 blood donors in New South Wales is as shown in Table I.

TABLE I.

#### Incidence of ABO Groups in 30,000 Blood Donors.

Blood Group.	Number.	Percentage.	Probable Error.	Standard Deviation.
O	14,672	48.91	$\pm 0.196$	$\pm 0.29$
A	11,514	38.38	$\pm 0.189$	$\pm 0.28$
B	2,912	9.70	$\pm 0.115$	$\pm 0.17$
AB	902	3.01	$\pm 0.021$	$\pm 0.03$

If  $r$  represents the gene O,  $p$  the gene A and  $q$  the gene B, the frequency of  $p$ ,  $q$  and  $r$  may be calculated, by the methods described by Wiener,<sup>(10)</sup> as follows:  $p = 0.235$ ,  $q = 0.066$  and  $r = 0.698$ .

The frequency of the various genotypes can be then calculated from the following equations:  $OO = r^2 = 48.91\%$ ;  $AA = p^2 = 5.52\%$ ;  $AO = 2pr = 32.86\%$ ;  $BB = q^2 = 0.43\%$ ;  $BO = 2qr = 9.27\%$ ;  $AB = 2pq = 3.01\%$ . Further, the percentage of group A subjects who are heterozygous is

$$\frac{2pr}{p^2 + 2pr} \times 100 = 85.6\%; \text{ and of those who are homozygous it is } \frac{p^2}{p^2 + 2pr}$$

TABLE II.

#### Frequencies of Blood Groups in Marriage Combinations.

Number.	Wife's Blood Group.	Husband's Blood Group.	Formulae.	Percentage Frequencies.
1	O	O	$r^4$	23.92
2	O	A	$r^2p(p+2r)$	18.77
3	O	B	$r^2q(q+2r)$	4.74
4	O	AB	$2pqr^2$	1.47
5	A	O	$r^2p(p+2r)$	18.77
6	A	A	$p^2(p+2r)^2$	14.73
7	A	B	$(p^2+2pr)(q^2+qr)$	3.73
8	A	AB	$2p^2q(q+2r)$	1.16
9	B	O	$r^2q(q+2r)$	4.74
10	B	A	$(p^2+2pr)(q^2+2qr)$	3.73
11	B	B	$q^2(q+2r)^2$	0.94
12	B	AB	$2pq^2(q+2r)$	0.29
13	AB	O	$2pqr^2$	1.47
14	AB	A	$2p^2q(q+2r)$	1.16
15	AB	B	$2pq^2(q+2r)$	0.29
16	AB	AB	$4p^2q^2$	0.09

is  $\frac{p^2}{p^2 + 2pr} \times 100 = 14.4\%$ . Similarly, the percentage of

group B subjects who are heterozygous is  $\frac{2qr}{q^2 + 2qr} \times 100 =$

95.55; and of those who are homozygous it is  $\frac{q^2}{q^2 + 2qr} \times$

100 = 4.45%. The ABO phenotypes may occur in marriages in sixteen different ways, the frequencies of which are calculated as shown in Table II.

Parents with seven of the possible combinations are capable of producing infants whose blood groups are incompatible with the agglutinins in the maternal serum. These combinations (2, 3, 4, 7, 8, 10, 12) occur in 33.89% of all marriages. However, not every child of these marriages will have blood incompatible with the mother's serum because of the heterozygosity of the father. It should be noted that the zygosity of the mother in combinations 7, 8, 10 and 12 does not affect the incidence of heterospecific

TABLE III.

#### Frequency of Heterospecific Pregnancies.

Blood Group.		Heterospecific Pregnancies in this Mating.	Heterospecific Pregnancies, Percentage of all Pregnancies.
Mother.	Father.		
O	A	$\frac{p+r}{p+2r} \times 100 = 57.19$	$r^2p(p+r) \times 100 = 10.73\%$
O	B	$\frac{q+r}{q+2r} \times 100 = 52.25$	$r^2q(q+r) \times 100 = 2.48\%$
O	AB	100%	$2pqr^2 \times 100 = 1.47\%$
A	B	$\frac{q+r}{q+2r} \times 100 = 52.25$	$pq(q+r)(p+2r) \times 100 = 1.95\%$
A	AB	50%	$p^2q(p+2r) \times 100 = 0.58\%$
B	A	$\frac{p+r}{p+2r} \times 100 = 57.19$	$pq(p+r)(q+2r) \times 100 = 2.13\%$
B	AB	50%	$pq^2(q+2r) \times 100 = 0.145\%$

pregnancy, because the agglutinin content of the serum of a patient is not dependent on the zygosity of the agglutinogens in the cells. The frequency of heterospecific pregnancies in the seven marriage combinations concerned is shown in Table III.

The percentage of pregnancies which will be heterospecific is therefore 19.49.

#### DESCRIPTION OF A MODIFIED APPARATUS FOR CONTINUOUS GASTRIC OR DUODENAL ASPIRATION, WITH A BRIEF HISTORICAL REVIEW.

By P. W. GILL,  
Sydney.

#### Historical Review.

THE evolution of gastric and duodenal intubation was traced in 1934 by Paine,<sup>(1)</sup> and a summary of the principal landmarks is to be found in Wangensteen's book, "Intestinal Obstructions".<sup>(2)</sup> The use of the stomach tube dates at least from the year 1790 when John Hunter fashioned one—perhaps the first—from an eel skin; but the full story of its development and varied uses is not relevant to this report. In 1910, however, Westermann of Germany started a new era, reporting "the treatment of fifteen cases of peritonitis with gastro-intestinal stasis by continuous siphonage drainage by means of a duodenal tube passed through the nose".<sup>(3)</sup> A consideration of certain developments from that time onwards, in this aspect of the management of intestinal obstruction and ileus, will serve to orientate this discussion.

The method of drainage used by Westermann was simple siphonage. The tube led directly from the patient's

nose to a receptacle on the floor, and of course siphonage did not occur unless the patient was above this receptacle. Even then, as Westermann observed, gas or air entering the tube often interrupted the siphon.

Kanavel<sup>(1)</sup> favoured a similar method with the addition of a water seal, that is, the tubing discharged its contents into the receptacle below a fluid level. This prevented air from entering the distal end of the tubing; but gas and air still entered the upper end from the bowel, to the detriment of the siphon.

Robertson Ward of San Francisco<sup>(2)</sup> appears to have been the first to use continuous negative pressure, thus overcoming the problem of air in the tubing.

In 1932 Wangenstein reported "successful decompression of three cases of mechanical bowel obstruction by nasal catheter suction siphonage".<sup>(3)</sup> In the following year he and Paine<sup>(4)</sup> demonstrated clearly that decompression achieved by continuous suction was far more efficient than that provided by any form of intermittent suction, such as the simple siphon employed by Westermann and Kanavel.

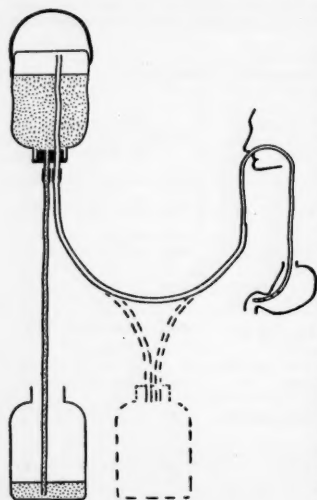


FIGURE I.

Wangensteen's well-known apparatus, which is simplicity itself, is in reality a siphon which discharges beneath a water seal and possesses a reservoir at its highest point (Figure I). Any gas or air that passes up the ascending limb from the bowel is trapped in this reservoir, and cannot enter the descending limb and so break the siphon. The negative pressure obtained depends on the difference in level between the patient's stomach and the water seal. It is not affected by the height or by the size of the reservoir, but only by the height of the patient above the lower flask. It obviously cannot function if the patient lies on the floor. Wangenstein has further suggested<sup>(5)</sup> the insertion of a "trap bottle" (see Figure I, interrupted lines), into which the bowel contents are aspirated. This simplifies measurement of the patient's fluid output, since the bowel contents remain undiluted in the trap bottle instead of passing into the two water flasks and mingling with their contents. Another less obvious advantage of the third bottle is that the ascending limb of the siphon becomes now a continuous column of air, which in no way diminishes the pull of the water column in the descending limb. The patient may be nursed on the floor, if necessary, and the apparatus will still function.

#### Description of a Modified Apparatus.

The following technique, a modification of Wangenstein's, was evolved at an advanced dressing station during the Aitape-Wewak campaign, where post-operative aspiration in cases of abdominal wounds afforded ample scope for experiment. (See Figure II.)

Three "Soluvac" flasks are required. One serves as a "trap bottle" for collection of the bowel contents; the bung of this flask is fitted with two short glass tubes each bent at a right angle above the bung to avoid kinking of the attached rubber tubing. The other two flasks provide a continuous suction system; each bung accommodates two straight tubes—a short one whose inner end is flush with the bung, and a long one which reaches almost to the base of the flask. These two flasks are assembled, one being filled to the shoulder with water,

the other empty. Their bungs are secured by strapping or other means, and the short glass tubes are linked by a piece of rubber tubing about four feet in length. Thus when both flasks are inverted there is an open channel between them by way of this tubing, along which the water may flow in either direction. They are suspended in the inverted position by means of a communicating strap which passes over a convenient support, and it is the inversion of both flasks that constitutes the chief value of this apparatus. Either flask may be elevated and its fellow lowered by sliding the strap, and the flow of water

from one to the other may thus be reversed at will. In either case, the upper flask exhibits suction at its air inlet (the long tube), the lower flask positive pressure at its air outlet (likewise the long tube). Figure II shows how suction is relayed from the upper flask to the stomach tube by way of the trap bottle.<sup>1</sup> As with Wangenstein's apparatus, complete emptying of the bowel in the vicinity of the stomach tube causes the flow to cease in all three flasks, only to resume as the bowel refills.

Concerning the degree of suction that should be used, Wangenstein<sup>(6)</sup> has emphasized a point that is commonly overlooked by surgeons—namely, that too powerful negative pressure defeats its own ends:

In the very elasticity of the intestinal tube resides one of the hindrances to the employment of great negative pressures, viz., the engagement of the mucosa of the stomach and bowel in the perforations of the duodenal tube. This may be overcome in part by the use of multiple perforations in the tube, but is best regulated by the use of continuous mild suction. From clinical trial and experimental test on the stomach and intestine of the dog and cat, seventy-five centimetres of water (two and a half feet) would appear to be within the optimal range of negative pressure.

With the method I have described, the degree of suction may be adjusted very simply by sliding the strap. Provided that the trap bottle is on a level with the patient's abdomen, the negative pressure exerted on the intestinal lumen is equivalent to the difference between the water levels in the two inverted flasks, irrespective of their height relative to the patient. The optimum appears to vary in different patients and at different ages. If in spite of precautions the tube becomes blocked by intestinal mucosa or particles of food, it may be cleared quickly and simply by reversing the flasks for a few seconds and so obtaining positive pressure.

A great advantage of this modification is that it is never necessary to replenish the water in either of the inverted flasks. Whenever the upper flask becomes empty, the rubber tubing that leads to it from the trap bottle is detached from its long air inlet and transferred to that of the lower flask, which is now full. Suction is then reestablished by reversing the flasks.

<sup>1</sup>A Y-tube interposed between trap bottle and patient facilitates intermittent lavage of the stomach with sodium bicarbonate solution.

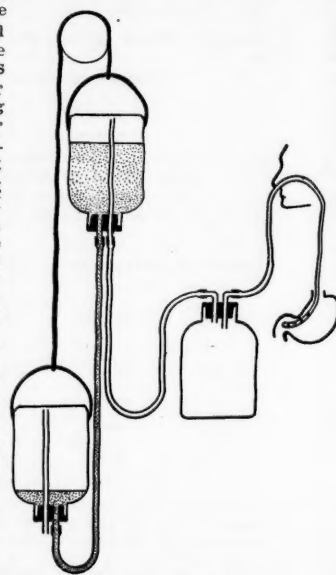


FIGURE II.



### Conclusion.

The apparatus described may be assembled easily from readily available parts and mounted on a simple stand. Once assembled, it may be used indefinitely, and apart from the emptying of the trap bottle, need never be dismantled. This eliminates the search for flasks and odd pieces of apparatus, often at an inconvenient hour, that so commonly attends the setting up of continuous gastro-intestinal aspiration.

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### A NOTE ON THE SELECTION OF MEDICAL STUDENTS.

By E. S. MEYERS and D. H. MEYERS,  
Brisbane.

IN THE MEDICAL JOURNAL OF AUSTRALIA of September 24, 1938, appeared an article by F. S. Cotton, D.Sc., entitled "An Inquiry into the Relationship between the Quality and Kind of Matriculation Passes of Medical Students and their Subsequent Success or Failure in the Various Annual Examinations"; to the issue of May 19, 1945, we contributed "The Problem of Selection of Medical Students for Admission to the Quota for the Medical Course".

At the present time, some universities are still employing the quota system, while others are beginning to feel the necessity for its reintroduction. Thus both these articles have a bearing on an important question—how to select from a number of matriculants those likely to do best after graduation.

Professor Cotton's summary reads as follows:

Evidence is advanced to show the following:

1. That the matriculation passes of medical students is distinctly correlated with the results of subsequent yearly examinations.
2. That approximately the weaker 30% by matriculation standards are responsible for more subsequent failures than the better 70%.
3. That students who have passed in a science subject at matriculation have much more success in the medical examinations than those who have not done so. The pass-to-fail ratio is rather greater than 3.
4. That, of those students who have not passed in a science subject at the matriculation examination, distinctly more fail than pass in the annual medical examinations, in spite of the fact that the group contains numerous bright students who have no difficulty with the medical course. The pass-to-fail ratio of these is approximately 0.8.

We have made the following statement:

It has been suggested that the following be taken into consideration in making selection for medical quotas: (i) scholastic ability as judged by performance, not only in the matriculation examination, but on the whole school record; (ii) reports from the headmaster or headmistress, not only on academic achievement, but also on the student's character, public service and participation in other school activities; (iii) result of

tests of aptitude for manual ability; (iv) report of an interviewing committee specially selected for the purpose of interviewing and reviewing all the records of the students.

An analysis of the results at matriculation and in the final examinations of the first 152 graduates of the University of Queensland Medical School is of interest. Ten matriculation subjects were considered: English, history, Latin, French, German, mathematics A, mathematics B, chemistry, physics and biology; of these, the first five were grouped as "arts" subjects, the last five as "science" subjects. Average passes for each candidate in the two groups were determined, 80% being allotted for an "A", 70% for a "B", 60% for a "C" and 50% for a "P". A candidate with an average of 70% was considered to have done well.

Final year subjects are medicine, surgery, and gynaecology and obstetrics. A "merit" and a "pass plus" or better was considered "good"; two "passes plus", were considered "fair"; anything less was considered "pass". Further, a repeated year put the candidate in the third category.

TABLE I.

Matriculation Examination. Group in which Good Result was Obtained.	Final Examination.				
	Good.	Fair.	Pass.	Total.	Percentage.
Both groups ..	13	5	4	22	14
Arts ..	1	2	4	7	5
Science ..	11	12	19	42	28
Neither ..	11	12	58	81	53
Total ..	36	31	85	152	100
Percentage ..	24	20	56	100	—

It would appear that Professor Cotton's first point in summary is borne out; and that, corresponding to his second, the weakest matriculants as a body have the least success in the final year, although some of them have good results. With regard to his third and fourth points, it should be remembered that, when the students under consideration entered the Faculty of Medicine, Queensland matriculation requirements made it necessary that either physics or chemistry should be passed at Senior standard. However, a student could "do well" at science subjects and yet not have good results in the finals.

One fact emerges—that the better the student's matriculation pass, the more likely he is to complete his course successfully. Thus one is justified in using records of scholastic ability in selecting students.

The most difficult problem for selectors is the filling of the last places from those applicants whose claims on the grounds of scholarship, character or other factors are not so apparent. Here particularly, more than academic qualifications are to be looked for, and the advantages of interviews and study of candidates' past records are most obvious.

Selection will be most efficient when the wastage of good material is reduced to a minimum. Referring to the "Neither" row of Table I, we might ask: "How can the eleven, or as many of them as possible, be picked from the eighty-one?" The article of Dr. D. H. Smyth, in the *British Medical Journal* of September 14, 1946, and the subsequent correspondence, contain much useful information which will go far towards providing an answer.

In passing, we mention two of many interesting pieces of information: first, that selection by examination results alone is not favoured in many schools; and second, that of proposed aids to selection, the one which has aroused least controversy is the use of headmasters' reports.

One question which Dr. Smyth does not raise is this: "What is to determine the number of places offered under

a quota system?" There can be only one answer—the number of people trained must be sufficient to satisfy the needs of the community. If too few are trained, the medical service will not be adequate; if too many are trained, the State will have incurred a loss, and, worse, standards may have been unnecessarily lowered.

## Reports of Cases.

### POISONING FROM DRINKING GLYCOL ETHYLENE.

By S. F. McDONALD, M.D., M.R.C.P., F.R.A.C.P.,  
Group Captain, Royal Australian Air Force, Brisbane.

GLYCOL ETHYLENE is used in many industrial processes. It is also used as a major constituent of de-icing fluid in liquid cooled aeroplane engines, and so may become available to air personnel. The actual composition of this fluid is 85 parts of glycol ethylene, 5 parts of alcohol (containing 2% di-ethyl-phthalate) and 10 parts by volume of distilled water. Royal Australian Air Force officers who have read the account of poisoning by glycol ethylene in *THE MEDICAL JOURNAL OF AUSTRALIA* of August 3, 1946,<sup>1</sup> may be interested to know that such poisoning occurred also in a Royal Australian Air Force unit in New Guinea.

At Moresby on New Year's Eve, 1943, a number of ground staff had got up a party to see the old year out. To provide something more stirring than water or tea, one of the hosts, Leading Aircraftman M., took without authority a quantity of glycol ethylene from store. This he mixed (unfortunately the precise quantities are not known) with lemon powder and water, and he plied his guests liberally with it—also helping himself. It does not seem to have been particularly palatable, and some at least of them needed pressing. Two of the most mildly affected guests admit having "five drinks each", and one witness spoke of large quantities.

The effect was disastrous: four men lost consciousness and did not regain it; two others were much upset and vomited freely a fiery-tasting fluid that burned their throats; but the man who provided the drink did not become gravely ill till noon next day. In fact, he and one of the seriously ill men kept on till breakfast; he tidied his tent, helped with the sick and showed a friend some photographs. Thereafter he returned to his tent and lay down; but he vomited and became so ill as to send for help to the unit sick quarters. But he retained consciousness and was admitted to Number 21 Medical Clearing Station on January 2, 1944, at 6 p.m. His condition was sufficiently serious; his face was puffy, his hands and feet were swollen, his breath was urinous and there was great diminution in urinary output; the urine he did pass was loaded with albumin and with cellular and blood casts. His blood pressure was raised to 220 millimetres of mercury (systolic) and 130 millimetres (diastolic) and his blood urea level to 100 milligrammes per 100 millilitres. In other words he presented the clinical features of severe glomerular nephritis. Custer and Pons<sup>2</sup> suggest that the nephritis is due to choking of the kidney tubules with oxalate crystals. There was no suggestion of this in Leading Aircraftman M.'s urine. The remarkable feature was that no eye changes and very little sense of gastric discomfort were present.

Gradually his condition began to improve, the urinary output increased, casts, blood and albumin disappeared from the urine, the blood pressure fell and the blood urea level returned to normal; but by January 15 he was still unable to concentrate urine satisfactorily.

He remained in hospital at Number 21 Medical Clearing Station for some weeks, and finally was evacuated by air to Brisbane and Sydney. At the 112th Brisbane Military Hospital (Royal Australian Air Force wards) he seemed almost normal, and only occasional albuminuria with odd casts was found, while his blood pressure was normal. In Sydney he was discharged from Number 3 Royal Australian Air Force Hospital, apparently cured. Whether he will progress to chronic azotæmic nephritis, as do so many of

those who have suffered from acute nephritis, remains to be seen. I am told that when last examined he was well.

The findings in the fatal cases were alike in all individuals.

On examination, the patient was very pale. The pulse rate was 108 per minute and the pulse was regular. The respirations numbered 40 per minute. The pupils were equal and moderate in size and reacted to light. The heart was not enlarged. The veins in the neck were engorged. The blood pressure was 150 millimetres of mercury (systolic) and 95 millimetres (diastolic). No adventitious sounds were heard in the lungs. The abdomen was soft. The deep reflexes were absent.

The subject was treated (i) with gastric lavage, (ii) by the intravenous administration of saline solution and glucose, (iii) by the continuous administration of oxygen. Gastric contents were collected in a specimen bottle. His condition deteriorated, and he died at 8 p.m.

The body was transferred to the 2nd/5th Australian General Hospital for autopsy. At the post-mortem examination the epithelium of the œsophagus was found to be injected. Some congestion of the lungs was present and the right side of the heart was dilated. The stomach and duodenum were dilated, and the gastric mucous membrane was brownish and corrugated, with punctate hæmorrhages. The liver, spleen and kidneys were a little congested. The findings were consistent with those following death from acute alcoholic poisoning.

Post-mortem examination of the other men who died showed the following changes. The lungs were deep red in colour and congested. The right side of the heart was dilated and flabby. In the œsophagus some desquamation of the epithelium of the upper third and bright red capillary injection of the lower two-thirds were present. The liver, spleen and kidneys were congested. The stomach and duodenum were dilated and atonic, and capillary injection of the serosa was present. The gastric mucous membrane was brownish and corrugated, with multiple punctate hæmorrhages. The stomach contents were brownish; they had little odour and no typical findings were noted. The appearances were consistent with death from alcoholic poisoning.

It is rather striking that the kidneys showed no greater evidence of damage.

In addition to the facts presented in the article that previously appeared in this journal,<sup>1</sup> Mr. A. Meston, Queensland Government Analyst, has kindly supplied the following information. "With regard to the toxicity of ethylene glycol (dihydric alcohol— $C_2H_4(OH)_2$ ), an examination of some glycol derivatives (by subcutaneous injection in mice) indicated that of the products examined, ethylene glycol mono-*n*-butyl ether (butyl cellosolve) was the most toxic, ethylene glycol itself next, then diethylene glycol.

"The minimum lethal dose for mice determined by the subcutaneous method for each of these products is as follows: (i) ethylene glycol mono-*n*-butyl ether, 0.5 millilitre per kilogram of body weight; (ii) ethylene glycol, 2.5 millilitres per kilogram of body weight; (iii) diethylene glycol, 5.0 millilitres per kilogram of body weight.

"With regard to toxic effects in man, the only serious cases of poisoning have occurred from the accidental drinking of a comparatively large quantity. On the basis of the quantity supposed to have been drunk in two almost fatal cases, the fatal dose is about 3.5 ounces.

"In two acute fatal cases, death appeared to be due to respiratory failure and convulsions. These deaths resulted from drinking anti-freeze radiator fluid, and the symptoms before death were vomiting, cyanosis and extreme prostration.

"In the acute non-fatal cases, the symptoms confirmed the finding in laboratory animals of severe injury to the kidneys. Two young men who accidentally drank ethylene glycol complained of a feeling of intoxication two hours afterwards, and soon passed into a condition of stupor, somnolence and coma. Complete double abducens paralysis was present and the pupils were dilated and failed to react to light. Death was averted only by surgical decapsulation of one kidney, which was found to be enlarged and dark red and in a condition of hæmorrhagic nephritis.

"In the chronic cases, very little that could be regarded as definitely symptomatic of intoxication was observed in

British factories; but several subjects showed slight urinary abnormalities."

The remarkable selectivity of action on the kidney is apparently not recognized as a constant feature. So remarkable was this in the case of Leading Aircraftman M. that one of the officers at the hospital to which he was first admitted suggested that the fluid might be used as a means of producing acute nephritis in laboratory animals.

#### Summary.

Cases of poisoning by glycol ethylene (de-icing fluid) on a Royal Australian Air Force station in New Guinea are described.

The effect on the servicemen and the course of the illness produced are described, with a report of post-mortem findings. A note on the chemistry of the fluid and its course as a poison is given.

#### Acknowledgements.

My thanks are due to Air-Commodore E. A. Daley, Director-General of Medical Services, Royal Australian Air Force, for permission to publish this note and for making available the findings of the board of inquiry held at Moresby; to Squadron Leader C. C. Greenwell, commanding No. 21 Medical Clearing Station, and to Squadron Leader James Isbister of Number 3 Royal Australian Air Force Hospital, Concord, for many clinical details.

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- <sup>1</sup> "Poisoning with Ethylene Glycol", THE MEDICAL JOURNAL OF AUSTRALIA, August 3, 1946, page 168.

### REPORT OF A CASE OF RESISTANT HÆMOPHILUS INFLUENZÆ MENINGITIS RESPONDING TO PENICILLIN.

By ELIZABETH K. TURNER,  
Melbourne.

THE following case is reported for two reasons: firstly, to add this record to the accumulating evidence that, *in vivo*, penicillin in concentrated doses exerts an antibacterial effect on the Gram-negative *Hæmophilus influenza*; and secondly, to demonstrate the innocuous effect of concentrated solutions of penicillin on the delicate intrathecal membrane.

#### Clinical Record.

R.W., a female patient, aged three years, during the afternoon of May 23, 1946, had a shivering attack and complained of headache; she rapidly became drowsy and later vomited. Next morning she was extremely drowsy and unable to use her left arm and leg; she was taken to the doctor, who diagnosed meningitis, and she was admitted to a country hospital. Her temperature was 99.8° F., and she was given 10,000 units of penicillin intramuscularly every three hours, commencing at 4 p.m. on May 24. One gramme of sulphamerazine was also administered orally every eight hours. A lumbar puncture was performed and turbid cerebro-spinal fluid was obtained, but no record of the cell count is available. Penicillin (20,000 units) was injected intrathecally; this treatment was continued each day.

Some temporary improvement was noted during the next three days; but the patient's temperature remained at approximately 100° F., and in the early morning of May 29 she commenced to have convulsive movements of the left side and became unconscious. Her temperature rose steadily, and she was transported by car to Melbourne, where I first examined her. At this stage her temperature was 104.4° F., her pulse rate was 160 per minute, and she was unconscious and had rhythmic convulsive movements of the left side of the face, the left arm and the left leg.

A lumbar puncture disclosed opalescent cerebro-spinal fluid containing 150 cells per cubic millimetre; 75% of these cells were of the polymorphonuclear series. The chloride content of the fluid was 760 milligrammes per

100 millilitres, and there were less than 10 milligrammes of glucose per 100 millilitres of cerebro-spinal fluid. Examination of a direct smear revealed *Hæmophilus influenza* in large numbers; a culture on chocolate agar comprised a growth of *Hæmophilus influenza* Type B, the strain being not identified.

Heparin (0.5 millilitre) was injected intrathecally, and this procedure was repeated every third or fourth day of the illness. One hundred and sixty millilitres of *Hæmophilus influenza* Type B antiserum (Commonwealth Serum Laboratories; equivalent to 160 milligrammes of antibody nitrogen) were given intravenously, in normal saline solution and 5% glucose solution according to the method described in a previous communication.<sup>1</sup> The intramuscular injection of penicillin was continued for the following thirty-six hours, and sulphamerazine was given orally during the next forty days, the dose being reduced on the sixth day from three milligrammes to one milligramme per day.

The initial response to the type-specific antiserum was encouraging; the temperature fell to 100° F., the convulsions ceased, and the child appeared clinically improved. A lumbar puncture on the second day in hospital in Melbourne revealed 330 cells per cubic millimetre of cerebro-spinal fluid, 88% being polymorphonuclear leucocytes; the sugar content was still less than 10 milligrammes per 100 millilitres. The temperature rose again to 103° F., and twitching of the left arm and leg recommenced; a further injection of 30 millilitres of antiserum was given into the buttock. On the third day in hospital lumbar puncture produced cerebro-spinal fluid containing 280 cells per millilitre, 88% being polymorphonuclear cells, and less than 10 milligrammes of sugar per 100 millilitres. A further injection of 60 millilitres of antiserum was given intramuscularly. The child had become obviously paler; the hæmoglobin value was 30% of normal. Her blood group was A (II), and she was given 600 millilitres of blood by the continuous intravenous drip method during the next nineteen hours. Some clinical improvement was manifest, but the temperature remained at 103° F., and at lumbar puncture on the fourth day the cerebro-spinal fluid still contained 200 cells per cubic millimetre, the sugar content was less than 10 milligrammes per 100 millilitres, and cultivation still produced a growth of *Hæmophilus influenza*.

On the fifth day a further injection of 30 millilitres of antiserum was given intramuscularly; again the hæmoglobin value fell to 40%, and on the sixth day a further transfusion of 600 millilitres of blood was commenced and iron was given orally.

On the seventh day, the cerebro-spinal fluid obtained at lumbar puncture contained 150 polymorphonuclear leucocytes per cubic millimetre and still less than 10 milligrammes of sugar per 100 millilitres. Thirty millilitres of antiserum were given intramuscularly. The dose of antiserum was empirical, as unfortunately there were no facilities for estimating the serum antibody titre. No improvement occurred, and the temperature remained at 101° F. The child remained rigid and still; she had pronounced left facial paresis and spastic paralysis of the left arm and leg.

On the twelfth day the hæmoglobin value was again 40%, and a further transfusion of 500 millilitres of blood was given. On the sixteenth day, the temperature dropped to normal for a few hours; but in cerebro-spinal fluid obtained at lumbar puncture 170 cells were counted per cubic millimetre, and the sugar content was less than 10 milligrammes per 100 millilitres.

The temperature rose again to 103° F., and on the twentieth day a further transfusion of 500 millilitres of blood became necessary. Liver extract and vitamin B were given by intramuscular injection each day, and vitamins A, D and C were given in large doses orally.

One week then elapsed during which sulphonamide and supportive therapy was maintained. The child's condition remained *in statu quo*; the temperature was 102° or 103° F.; the cerebro-spinal fluid contained 100 to 200 polymorphonuclear cells per cubic millimetre, the sugar content was less than 10 milligrammes per 100 millilitres, and culture continued to produce a growth of *Hæmophilus*



*influenzae*. Examination of the central nervous system revealed no localizing signs except for the left hemiplegia; but it was decided that ventriculography and possible cranial exploration seemed indicated. A vain appeal was made for streptomycin, but none could be procured. Before resort was had to operation, it was decided to try the efficacy of massive doses of penicillin.

On the twenty-ninth day, therefore, 100,000 units of penicillin dissolved in one millilitre of normal saline solution were injected into the theca, and 30,000 units were given intramuscularly every three hours. Apart from the initial pain of the intrathecal injection there were no ill effects, and that evening the temperature dropped to 101° F. On the thirtieth day a further 100,000 units were given intrathecally. The nurses reported that the child seemed much improved; her temperature dropped to 99° F. On the 31st day, the turbidity of the cerebro-spinal fluid had increased, owing undoubtedly to local irritation; accordingly the intrathecal dose of penicillin was reduced to 50,000 units. On the thirty-second day the temperature became normal and remained so until the child's discharge from hospital, except for three occasions when it rose to 99° F. The cerebro-spinal fluid contained 100 cells per cubic millimetre, mostly lymphocytes, and the sugar content, estimated by the five tube method, had risen to between 40 and 50 milligrammes per 100 millilitres. The intramuscular dosage of penicillin was reduced gradually and discontinued on the forty-eighth day. The child was discharged to her home on the fifty-seventh day. She had a left hemiplegia, but was mentally apparently normal and had a good memory for past events in her home; her mother stated that the child "seemed her old self again".

#### Discussion.

Hattie Alexander<sup>10</sup> suggests that in meningitis due to the *Hæmophilus influenzae*, if the bacterial population is large enough initially, there is a small fraction of organisms which possess the capacity to thrive in the presence of antibacterial agents effective against most of the organisms—for example, the sulphonamides—and that the apparent development of resistance appears to represent a selective process which eliminates the sensitive organisms and therefore permits the emergence of resistant.

In this case the initial therapy undoubtedly made some progress; but the resistant small fraction of organisms persisted in spite of attempts to raise the serum antibody titre by intravenous and intramuscular injection of specific antibody. Whole blood transfusion, liver, iron, and vitamin therapy seemed unable to raise the child's resistance sufficiently to overcome the infection.

I believe that no loculation or "pocketing" of organisms occurred in this case, and that the prevention of cerebro-spinal block was accomplished by the regular intrathecal injection of heparin. I also suggest that, had the child been subjected to ventriculography and cerebral exploration, no abscess would have been found.

It would seem that the massive intrathecal dosage of penicillin was the predominant factor in the final sterilization of the cerebro-spinal fluid, and that the antibacterial concentration probably could not have been attained had penicillin been injected by any other route.

Finally, the appreciation of the innocuous and indeed beneficial effects of large doses of penicillin may be of value in combating this disease in the other cases, in the absence of a more specific antibacterial agent such as streptomycin.

#### Summary.

A child, aged three years, suffering from influenzal meningitis, which proved resistant to therapy with sulphonamides, with type-specific antiserum and with ordinary doses of penicillin, finally responded dramatically to large doses of penicillin both intrathecally and intramuscularly.

Some suggestions are offered about the apparent resistance of the infection.

The case gives indication that *Hæmophilus influenzae* is in some degree sensitive to penicillin *in vivo*.

#### References.

- <sup>10</sup> E. K. Turner: "A Further Report on the Treatment at the Children's Hospital, Melbourne, of Influenzal Meningitis with Sulphonamides and Type-Specific Serum", *THE MEDICAL JOURNAL OF AUSTRALIA*, March 3, 1944, page 219.
- <sup>11</sup> H. Alexander: "Streptomycin in Pediatrics", *American Journal of Pediatrics*, August, 1946, page 195.

## Reviews.

### THE TREATMENT OF DIABETES MELLITUS.

THE book on diabetes by W. S. Collens and L. C. Boas is a very complete manual of all aspects of the disease.<sup>1</sup> The chapter on the history of diabetes is well done. The further chapters on the management of diabetics are also quite lucid and complete. The complications of diabetes are very well dealt with and the book is illustrated excellently. Although this is a book one can recommend to any person treating diabetes, we have the feeling that it has added but little to the more simply expressed manuals such as those of Lawrence and Ingram for the younger graduate and general practitioner. It can, however, be recommended as a more complete work for the specialist.

### PNEUMOPERITONEUM TREATMENT.

THE latest publication of that prolific authority on diseases of the chest, Dr. A. L. Banyal, of Milwaukee, is a monograph on "Pneumoperitoneum Treatment".<sup>2</sup> As he points out in the preface, pneumoperitoneum is a technically simple and safe procedure; it has come, especially during the past ten years, to be fairly generally used in the treatment of pulmonary tuberculosis, emphysema and tuberculous peritonitis and enterocolitis. "Every physician of average manual dexterity should be able to give this treatment", according to Dr. Banyal. In this country it has so far been practised almost entirely by tuberculosis specialists and medical officers of sanatoria, and, of course, manual dexterity is the least necessary of the attributes required for its satisfactory performance. A sound knowledge of the diseases in which it is used and a ripe judgement in their general management are much more important. Dr. Banyal has reviewed the literature of the subject so thoroughly that the novice seeking precise guidance from the chapter on technique might find it difficult to "follow the yellow brick road" on account of the vegetation which almost conceals it. Moreover, there are a few aspects of the subject upon which it is clear that the last word has not yet been written; for instance, many will not agree with Dr. Banyal that the stretching of the hepatic ligaments plays little role if any in the causation of shoulder pain following pneumoperitoneum. The chapters on the indications for and effect of pneumoperitoneum in various diseases, especially pulmonary and abdominal tuberculosis, make up the greater part of the book; they are exhaustive and very good.

### PHYSICAL SIGNS IN CLINICAL SURGERY.

THE tenth edition of "Demonstrations of Physical Signs in Clinical Surgery", by Hamilton Bailey, is a small book of three hundred and sixty pages of reading matter; it contains no less than five hundred and seventy-three illustrations, many of which are coloured.<sup>3</sup> Once again a very high standard has been reached both in the illustrations and in the approach to each individual subject treated. To add more would be to "paint the lily". The book is essential to every student and to every practitioner of medicine.

<sup>1</sup> "The Modern Treatment of Diabetes Mellitus, Including Practical Procedures and Precautionary Measures", by William S. Collens, B.S., M.D., and Louis C. Boas, A.B., M.D.; 1946. Springfield, Illinois: Charles C. Thomas. 9" x 6", pp. 536, with many illustrations. Price: \$8.50.

<sup>2</sup> "Pneumoperitoneum Treatment", by Andrew Ladislav Banyal, M.D., F.A.C.P., F.C.C.P.; 1946. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Pty. Ltd. 9½" x 6½", pp. 376, with many illustrations. Price: 49s.

<sup>3</sup> "Demonstrations of Physical Signs in Clinical Surgery", by Hamilton Bailey, F.R.C.S. (England), F.I.C.S.; Tenth Edition. Revised; 1946. Bristol: John Wright and Sons Ltd. London: Simpkin Marshall (1941) Limited. 9" x 5½", pp. 388, with 573 illustrations, a number of which are in colour. Price: 30s. net.

## The Medical Journal of Australia

SATURDAY, FEBRUARY 15, 1947.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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### THE HEALTH SERVICES OF SOUTH AUSTRALIA.

In April, 1946, the Parliament of South Australia appointed a committee to inquire into and report upon the advisability of consolidating the health services of the State into a single department under a Minister of Health. The chairman of the committee was Mr. H. H. Shannon, M.P., and the members were Mr. L. S. Duncan, M.P., Mr. W. P. Bishop, A.F.I.A., Dr. H. M. Jay, Dr. L. W. Jeffries, Dr. Elma Sandford Morgan and Dr. A. R. Southwood. The committee was given the authority of a parliamentary committee. The committee took evidence from witnesses in South Australia, Victoria, New South Wales and Queensland; it visited sanatoria and hospitals of different kinds and it submitted its report to Parliament on December 4, 1946. In deciding to appoint this committee, the South Australian Government showed its recognition of the need for reform. The public health machinery of South Australia is still based mainly on the *Health Act, 1898*; this is true according to the committee, even though the act of 1898 was repealed when the *Consolidating Act of 1935* was passed. The general principles are remedial rather than preventive. The health services of South Australia are divided into two main groups, though both are under the control of the Minister of Health. The health services are administered by the Central Board of Health and the medical services are administered by the Director-General of Medical Services through the channels of the Hospitals Department. A certain liaison does exist between two main divisions through the Advisory Committee on Health and Medical Services, a body appointed by the Government in 1943. The chairman of the Central Board of Health is chairman of this Advisory Committee and the Director-General of Medical Services is a member. This committee not only has the duty of advising the Minister of Health on any matters relating to the health services, but it may make

to the Minister any recommendations that it thinks fit. The appointment of the Advisory Committee was obviously an attempt on the part of the Minister to coordinate the official and unofficial health activities of the State. It should perhaps be explained that there are certain health services which are not under the control of the Minister of Health. These include among others the medical and dental services of the Education Department and the medical services in connexion with the Children's Welfare and Public Relief Department and the Gaols and Prisons Department. It is the responsibility of the Central Board of Health to administer Acts of Parliament relating to the various health activities, in conjunction when necessary with the Metropolitan County Board (a board constituted under the *Food and Drugs Act, 1908-1943*) and the various local Boards of Health. The committee making its report (for convenience we shall call it the Parliamentary Committee) explains that the *Health Act* provides for the securing of proper sanitary conditions in relation to the supply of milk and food, the disposal of refuse, and generally in regard to premises, drains, water supplies, slaughterhouses, buildings, and all other matters affecting public health. In addition to the Central Board of Health, there are, constituted under the *Health Act*, local Boards of Health. Every municipal council is constituted a local board of health for its municipality and every district council is constituted a local board of health for its district. Each of these bodies is charged with the responsibility of administering sections of the act, and there are in the State no less than 142 of them. There is in addition the East Torrens County Board which has responsibilities in connexion with certain areas. Outside the boundaries of the local boards of health the Central Board alone acts as administrator. The Central Board of Health also acts as a supervisory body over all local boards of health under the act, and it supplements this supervision by an active policy of inspection and advice; it has concurrent jurisdiction with all local boards. The Hospitals Department is controlled by the Director-General of Medical Services, who is responsible to the Minister of Health for the control and administration of hospitals and institutions which may be classified under three headings: government general hospitals, government tuberculosis hospitals and government mental hospitals. In connexion with government tuberculosis hospitals there is an Advisory Council on Tuberculosis Services comprised of three members; the Director-General of Medical Services is chairman pending the appointment of a director of tuberculosis services. The Superintendent of Mental Institutions is responsible to the Director-General of Medical Services for general management and control of these institutions—the relevant act is the *Mental Defectives Act, 1935-1941*. The Director-General of Medical Services fills other positions. He is chairman of the Nurses' Board of South Australia, a member of the Medical Board of South Australia, a member of the Institute of Medical and Veterinary Science, a member of the Faculties of Medicine and Dentistry of the University of Adelaide, a member of the South Australian Hospitals Association and a medical referee under the *Workmen's Compensation Act, 1932-1941*. There are 39 hospitals in the State subsidized by the Government. The Director-General of Medical Services has the duty of advising the Minister of Health in regard to grants for these institutions. A special note is necessary in regard to the Royal Adelaide Hospital.

The Parliamentary Committee explains that this institution is controlled by a board comprised of three members of whom the Director-General of Medical Services is chairman. There is also an advisory committee appointed for the purpose of advising and assisting the Council of the University of Adelaide and the Board with respect to any matter concerning the medical course and the dental course of the university and the attendance and instruction at the Royal Adelaide Hospital in these courses. This committee also advises the Hospital Board on matters related to the appointments of honorary staff.

The foregoing is in short the general set-up on which the Parliamentary Committee had to express an opinion and in regard to which it took evidence. Extracts from the evidence have been taken, have been paraphrased and have been put together. This has been so skilfully done that the end result is a convincing statement. The existing organization, we read, is a patchwork and lack of consolidated statutory and administrative control is clearly seen. A radical fault with the present organization is that there is no proof that the work is coordinated into a competent medical service. The functions of the different bodies carrying out the health services overlap and there is lack of liaison between them. The function of the Central Board of Health is regarded as being too limited and the act controlling it needs to be amended "to bring that function into line with modern thought". The Hospitals Department is stated to have developed gradually into a department so as to be almost entirely independent of the Central Board of Health. The development of hospitals has been uneven and too little attention has been paid to the provision of hospitals for patients suffering from chronic and subacute illnesses. This is probably true of every capital city in Australia and is one of the reasons for the shortage of beds in first-grade hospitals. Another point made is that public health control and maternal welfare can scarcely be said to exist in South Australia, while infant welfare is almost entirely divorced from the department and is controlled by private organizations. None of the other features of the evidence need be mentioned; all that is necessary is to show the general trend of opinion on the set-up in the State. The value of the work that is being done under the present scheme of organization is not being called in question; what is under review is the architecture or lack of it that has created the conditions under which work is being done. The committee follows the paraphrased evidence with certain conclusions and then proceeds to make its recommendations, of which an outline must now be given.

The first recommendation is that a Department of Health and Medical Services should be established and should be under the control of the Minister of Health. A commission to be known as the Commission of Health and Medical Services should also be appointed to control and administer the department and to be responsible to the Minister. It is suggested that the commission should consist of five members, all of whom should be appointed by the Governor. Of these the chairman would be Director-General of Health and Medical Services. He should be a medical practitioner and should be a permanent full-time officer of the public service. Two of the remaining four members should be medical practitioners and one of these should be selected from names submitted by the South Australian Branch of the British Medical Association;

two should be lay members. One member of the commission other than the chairman should have an intimate knowledge of conditions existing in country districts. It is recommended that the Commission of Health and Medical Services should be responsible for and be vested with the necessary powers to administer the functions now carried out by the following government departments and statutory bodies: (a) the State Health Department, including the Central Board of Health; (b) the Hospitals Department, which would cover all government hospitals and the licensing and inspecting of private and mental hospitals; (c) the medical and dental services of the Education Department; (d) the services of medical practitioners for the Children's Welfare and the Gaols and Prisons Department, and the work associated with lying-in houses now carried out by the Children's Welfare Department; (e) the Metropolitan County Board; (f) local boards of health so far as they relate to food and drugs and the licensing of private hospitals; (g) the Infectious Diseases Hospital Board. It is suggested that in addition the commission should assume, in conjunction with the Mothers and Babies' Health Association and the Kindergarten Union, responsibility for the provision of an adequate maternal and child health service. The Department of Health and Medical Services should comprise the following divisions—Public Health, Hospitals, School Health, Tuberculosis, Mental Health, Maternal and Child Health, and Dental Health. There should also be appointed a secretary to the Department of Health and Medical Services to control the lay administration of the department under the Director-General and to be secretary of the commission. Detailed recommendations are made in regard to each of these proposed divisions. It is not necessary to describe them here. Generally speaking they are in keeping with general principles held by the South Australian Branch of the British Medical Association. The proposed structure of the future health services for South Australia is, to use a phrase that has served the Parliamentary Committee, in accordance with modern thought. The structure leaves little if anything to be desired. Two questions come to mind. The report does not make clear what the committee has in mind in regard to the relationship between the University of Adelaide and the Royal Adelaide Hospital—its teaching hospital for students of medicine—a most important question, as was shown by Professor Peter MacCallum in his recent president's address to the Victorian Branch of the British Medical Association. It seems that the present advisory committee will expand its functions to include the Children's Hospital, the Queen Victoria Maternity Hospital and other teaching institutions. Again the setting up of a division of tuberculosis under the Department of Health and Medical Services will be approved by most practitioners interested in the subject, provided the right man is put in charge and provided nothing is done that would stand in the way of the fullest collaboration with a National Association for the Prevention of Tuberculosis when this desirable body comes into being. This is a matter for a future discussion. That the Government of South Australia is in earnest about the state of its health services seems to be a justifiable conclusion. That it will plan wisely for the future and therefore on generous lines is our earnest hope. In the initial stages particularly, everything will depend on the man who is chosen to be a medical head of the proposed commission.



## Current Comment.

### MALARIA IN THE PANAMA CANAL ZONE.

THE Panama Canal zone is one of the extremely interesting areas of the world to the malariologist, not only for the great success that has attended the classic preventive measures that have been carried out there, but also because side by side with the sanitated areas are tracts of similar country where malaria is highly endemic. In fact Lieutenant-Colonel N. H. Einhorn and W. J. Tomlinson, writing of their experiences there with the care of 493 children suffering from malignant malaria, state that malaria and helminthiasis are of prime clinical importance in children in the Isthmus of Panama.<sup>1</sup> They also remark that the clinical manifestations of the disease in children vary considerably from the familiar picture as seen in the adult. The young patients were studied in the Gorgas Hospital, Ancon, and the Colon Hospital, Cristobal, over a period of six years. During this time 493 children were treated for the malignant variety and 334 for the benign. Entomological studies show that the mosquitoes involved belong to some half-dozen types, but the most commonly met are three in number. One of these, *albimanus*, though no longer a problem in the sanitated areas, breeds freely in sunlight, especially along the shallow foreshore waters of Lake Gatun. This and other mosquitoes may invade the protected areas. From the point of view of prevention there are three types of locality, the sanitated, the partially sanitated and the unsanitated. In the last two areas the numbers of infected children were almost equal.

It was unusual to find any regular pattern in the early symptoms, which seldom included the classic chill, fever and sweat. Prodromal symptoms such as anorexia, drowsiness, irritability and pains in the head or body were common. Fever was, of course, almost universal, but a chill affected only slightly less than half the patients. The temperature was irregular. Cerebral types were seen; delirium was observed in 9% of the total, coma in 5% and convulsions in nearly 8%. The variability of the symptoms and the failure of them in many cases to correspond with the so-called classical picture in adults come as no surprise to those with experience of malignant tertian malaria. The percentage of relapses is of interest. Relapses occurred in 24% of the children; but only one-third of these took place within six months, and but half this number within two months. As might be expected, it was very difficult to decide whether these were true relapses, that is, recrudescences, or reinfections, since the hazard even in safe areas was not always easy to estimate. Even the movements of the patients would not always be traced with certainty. Latent and chronic infections were also seen. The death rate was 2.4%. The authors state that they found that the disease was difficult to cure. They further state that they were struck with the number of children who, although receiving adequate treatment for a primary attack, suffered relapses even though they had no apparent opportunity of becoming infected. The standard drugs were used, quinine, "Quinacrine" and "Pamaquine". Quinine was administered parenterally to only a small number. "Quinacrine", or "Atebrin", as we more familiarly call it after long use of the name, was employed in the treatment of about three-quarters of the patients. "Pamaquine" was given for five days as a rule and no toxic reactions were noted. The doses of all drugs were calculated rather by body weight than by age. In view of the circumstances, the percentage of relapses is perhaps not as high as the figures might indicate, for it is admitted that many of these children went home from hospital to unsanitated areas.

The authors in summing up agree with the universally held opinion that the pernicious forms of *Plasmodium falciparum* malaria in children are medical emergencies. It is wise to regard them so in both children and adults. This paper emphasizes the perennial battle which is necessary for the control of malaria. Even the protected area

may not be completely safe if it is contiguous with one in which the antimalarial measures are ineffective. Particularly is this so in a part of the world that, like some of those well known to soldiers in the islands of the South-West Pacific, is a mosquito's paradise, where breeding continues throughout the year. It is interesting to read that although some 15% of the patients live in completely controlled communities, 85% came from uncontrolled districts, rural or semi-rural. Military experience has proved that science and thorough application of its methods with adequate discipline can control malaria, but the carrying out of this over an extensive area involves huge tasks. This account of malaria in the canal zone, while showing what splendid work has been done, indicates the magnitude of the problem even in a restricted area.

### THE MEDICAL ANNUAL.

PROBABLY at no time in recent years have so many medical practitioners felt the need for summarized and reliable statements on progress in medical knowledge. Those who served with the forces during the recent conflict had few opportunities of trying to keep up with their medical reading. Sometimes they were so busy that no time was left for reading; sometimes, when time was available suitable literature was lacking. Those who tried to carry on the practices of serving doctors as well as their own were perhaps in better circumstances from the point of view of reading. They could find medical literature that would be useful to them, but they were often so weary that reading was not easily kept going. Readers of this journal have grown accustomed to our annual announcement of the appearance of the "Medical Annual". Throughout the war this important work was published with unfailing regularity. The publishers had more than their share of damage by enemy action, for on two occasions their printing establishment was destroyed. They have carried on a most valuable service for the medical profession of the English-speaking world, and it is with the greatest pleasure that we announce the publication of the volume for 1946.<sup>1</sup> The ex-service medical officer and the general practitioner will find this work indispensable. If they have not already done so we advise them to begin without delay to acquire what in previous years we have called the "Medical Annual habit". Once they have this habit they will not readily lose it.

In the present volume a good deal of prominence has been given to advances in medicine during the war which are applicable to civilian practice. In this category penicillin holds a prominent place and several pages are devoted to a review dealing in turn with the mode of action, method of administration and clinical application. Penicillin in chest surgery and penicillin dosage in infancy are also discussed. Mention of penicillin calls to mind the sulphonamides. There is no doubt that the practitioner who contrives to reach a proper understanding of the spheres of usefulness of these therapeutic agents has a great advantage. It is pointed out that the sulphonamides reached their highest pinnacle about two years ago and that then penicillin seemed to take the leading place. Now these two agencies "seem to be travelling more equitably side by side". The limitations of penicillin are being recognized, but it is surprising that the sulphonamides may be superior to penicillin in the treatment of meningo-coccal meningitis. Several other subjects on which the general practitioner ought to have a proper understanding include gastric and duodenal ulcer; this is a subject on which more and more will be written until the cause and mechanism of ulcer formation are understood. This year the medical and surgical aspects of peptic ulcer are adequately discussed. Tuberculosis, diabetes, rheumatic disorders, *placenta prævia* and certain gynaecological conditions, as well as mental disorders, are conditions on which the practitioner must keep himself well informed.

<sup>1</sup>"The Medical Annual: A Year Book of Treatment and Practitioner's Index", edited by Sir Henry Tidy, K.B.E., M.A., M.D. (Oxon.), F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S.; 1946. Bristol: John Wright and Sons Limited; London: Simpkin Marshall (1941) Limited. 8½" x 5½", pp. 566, with illustrations.

<sup>1</sup>American Journal of Diseases of Children, August, 1946.

## Abstracts from Medical Literature.

### PHYSIOLOGY.

#### The Respiratory Metabolism of Human Subjects during Prolonged Exposures to Simulated Altitudes of 8,000 and 10,000 Feet.

S. A. D'ANGELO (*The American Journal of Physiology*, August, 1946) reports the results of experiments on six human subjects. Prolonged exposures (ten hours) to simulate altitudes of 8,000 and 10,000 feet without supplementary oxygen and under standardized conditions of restricted food intake, increased the respiration of the resting human subject. The degree of respiratory change from the ground level condition was of the same order of magnitude at both altitudes. The augmented respiration involved an increase in depth rather than in rate of breathing. The modifications in the respiratory metabolism at altitude were collectively indicative of respiratory alkalosis. The major changes involved the following: an increase in the minute volume and carbon dioxide elimination which, relative to ground level values at similar time intervals, became progressively greater with continuing exposure time; an elevation of the respiratory quotient; a shifting of urinary pH towards alkalinity in subjects displaying appreciable hyperventilation. No significant changes in the over-all oxygen consumption, or in oral temperature, resulted from the protracted exposures at the 8,000 and 10,000 feet levels. The physiological changes at altitude were reflected in various behaviour differences (somnolence, irritability, inattention, lack of volition, and fatigue), which, while not quantitatively assayed, were highly suggestive of psychological deterioration during single prolonged exposure. Obvious differences appeared to exist among subjects with regard to tolerance to these extended stays at altitude. Resistance to exposure was best correlated with elevation of the respiratory quotient. Subjects displaying little or no change in respiratory quotient tolerated altitude poorly. In those tolerating exposure relatively well, the respiratory quotient was significantly elevated. These results suggest that serious consideration should be given to the definition of an altitude limit on prolonged flights without supplementary oxygen. The advisability of using extra oxygen at altitudes as low as 8,000 feet is further indicated.

#### Palmar Skin Resistance as a Measure of Physical Fitness.

E. R. ELBEL AND R. R. RONKIN (*The American Journal of Physiology*, September, 1946) state that they have studied the reliability of palmar skin resistance during rest and exercise, and discuss the validity of palmar skin resistance as a measure of physical fitness. The reliability of palmar skin resistance determinations was high ( $r_{tt} = 0.920$  to  $0.998$ ) during rest and exercise (knee bends and treadmill run), when testing was accomplished on single days or on successive days. In spite of its high reliability, palmar skin resistance is not a good measure of physical fitness, for in the case of

the treadmill run to exhaustion, there is no correlation between resting palmar skin resistance and endurance, and there is evidence of poor correlation between palmar skin resistance and endurance in all conditions studied. Though the majority of subjects showed a decrement in palmar skin resistance with increased fatigue caused by prolongation of the exercise interval, palmar skin resistance is not a valid measure of fatigue. Many subjects showed the reverse change. In general palmar skin resistance decreases during exercise and increases during rest. The decrement is more pronounced during intensive than during mild exercise. In the main palmar skin resistance has an inverse relationship to pulse rate. The temperature of the electrolyte in which the hands are immersed influences palmar skin resistance readings, but has no effect upon the reliability of the test.

#### Studies on the Nutritive Value of Lactose and Galactose with the Single-Food Choice Method.

B. H. ERSHOFF (*The American Journal of Physiology*, September, 1946) reports that female rats were fed diets consisting solely of lactose, galactose, dextrose, sucrose and butter fat; a control group was fed on water alone. The period of survival in the lactose, galactose and fasting series averaged five to seven days, in contrast to a survival time of  $34 \pm 4$  days for animals receiving the dextrose, sucrose or butter fat diets. Evidence is presented indicating that rats failed to survive on lactose alone owing to inability to hydrolyse this disaccharide in adequate amounts. When the products of hydrolysis were fed in place of lactose, survival time was equal to that observed for the dextrose, sucrose or butter fat series. Under conditions of the present experiment galactose was not utilized as a source of Calories by the rat. When diets were fed consisting of 50% dextrose and 50% galactose, or of 30% butter fat and 70% galactose, food was ingested in sufficient amounts to meet body requirements with non-galactose Calories. The non-galactose Calories consumed in the latter diets were similar in amount to levels consumed in dextrose, sucrose or butter fat diets. Severe flaccid paralysis was observed in rats fed dextrose and galactose or butter fat and galactose rations. Such paralysis did not occur in rats receiving diets of dextrose or butter fat alone. A strain difference was observed in the incidence and severity of this condition.

#### The Nature of Intraperitoneal and Intrarectal Pressures.

R. F. RUSHMER (*The American Journal of Physiology*, October, 1946) reports that a series of experiments was conducted at the School of Aviation Medicine, Randolph Field, Texas, for the purpose of exploring the physical characteristics of the pressures within the abdominal cavity. The intraperitoneal pressures were measured on dogs whilst the rectal measurements were made on men. The author states that the pressure within the abdominal cavity is primarily a manifestation of the head of pressure provided by the mass of the movable organs within the peritoneal cavity. The magnitude of the recorded pressure is directly related to the vertical height of the column of abdominal contents above the level

at which the measurement is made. The tonus of the skeletal musculature contributes a relatively small amount of pressure to the total recorded pressures if the subject remains relaxed in the erect position. The intraabdominal pressure may partially balance the venous and capillary pressures, opposing the tendency for pooling of blood within the splanchnic reservoir. The experimental results indicate that the average pressure supported by the venous walls is less than five millimetres of mercury at any level in the abdomen. The determination of intrarectal pressure also appeared to be a reliable method for estimating variations in intraperitoneal pressure.

#### Decline in the Rates of Sweating of Men Working in Severe Heat.

S. D. GERKING AND S. ROBINSON (*The American Journal of Physiology*, October, 1946) state that the hourly rates of sweating of men walking on a treadmill in severe heat declined steadily during the course of six-hour experiments. The men were well acclimatized to the heat and maintained water balance by drinking 0.1% saline solution in the experiments. In fifty experiments the average rate of sweating during the first two hours—that is, the initial rate—was 1,400 grammes per hour, and the sweating rates of the men declined from 10% to 80% of this value by the sixth hour, according to environmental conditions. The decline occurred only in relatively high rates of sweating, since the men were able to sweat at a practically constant rate (about 750 grammes per hour) while working in moderate heat. The declines of the sweating rates were distinctly greater in humid than in dry heat, the initial rates of sweating being about equal. Also, in both humid and dry heat the decline was greater when the men wore army tropical uniforms than when they wore only broadcloth "shorts". Another response shown by men wearing tropical uniforms was a greater decline in their rates of sweating as the initial rates of sweating increased. Since the decline in sweating was not associated with dehydration or with decreased strength of the stimulus for sweating, it is concluded that the sweating mechanism was fatigued in some way.

#### Formulation of the Principal Factors Affecting the Rate of Uptake of Carbon Monoxide by Man.

N. PACE, W. V. CONSOLAZIO, W. A. WHITE, JUNIOR, AND A. R. BEHNKE (*The American Journal of Physiology*, October, 1946) report that the rate of uptake of carbon monoxide from the ambient air has been shown to be constant with respect to blood concentration of carboxyhaemoglobin up to values of one-third the equilibrium level, when air containing carbon monoxide in the range of 1 part to 20 parts per 10,000 is breathed by men at rest or engaged in moderate physical activity. The following equation has been derived to serve as a means of estimating in man the degree of blood saturation with carbon monoxide as a result of exposure to air containing the gas: increase in percentage of carboxyhaemoglobin equals

$$\frac{\text{parts CO} \times \text{minute vol.} \times \text{exposure time}}{46.5 \times \text{blood volume}}$$

The equation is valid for percentage values of carboxyhaemoglobin up to one-

third the equilibrium value for the air concentration of carbon monoxide under consideration. Within this range the increase in the percentage of carboxyhaemoglobin may be estimated within a degree of error whose standard deviation is  $\pm 2.3\%$  carboxyhaemoglobin. The fraction of carbon monoxide removed from the inspired air by the blood was found to be constant as uptake progressed, and the mean for a group of twelve men was  $41.2\%$  with a standard deviation of  $\pm 4.4\%$ . The authors state that this value is somewhat lower than that observed by previous investigators.

## BIOCHEMISTRY.

### Quinine.

W. E. KNOX (*The Journal of Biological Chemistry*, June, 1946) has studied the oxidation of quinine in the liver. He has found that the responsible enzyme has properties similar to, and is associated with, the flavoprotein, liver aldehyde oxidase. The enzyme is considered to be a flavoprotein with functions similar to xanthine oxidase.

### Production of Granulocytes.

A. KORNBERG (*The Journal of Biological Chemistry*, July, 1946) has determined the amino acid requirements for granulocyte production in rats prepared from weaning on protein-free diets. A mixture of the ten essential amino acids (8.7% of the diet) successfully replaced casein or egg white in the production of granulocytes. Of these ten acids none was dispensable except arginine, which appeared to be essential in only about one-half of the animals. Findings with amino acid supplementation of oxidized casein and dried plasma substantiated findings with mixtures of purified amino acids. In the production of erythrocytes, the data indicate that a mixture of ten essential amino acids can largely replace casein. Oxidized casein promoted erythrocyte production only when supplemented with methionine and tryptophane. Administration of the essential amino acid mixture at an 18% level to the protein-depleted rats resulted in a high mortality.

### Iron Metabolism.

D. H. COPP AND D. M. GREENBERG (*The Journal of Biological Chemistry*, July, 1946) have used radio-iron to study the iron metabolism of normal rats two months old and of anemic rats which had been depleted of iron by being reared on a diet of powdered milk. No significant excretion of radio-iron was observed in the bile, urine or faeces following parenteral administration of the tracer dose. Iron-depleted rats absorbed over 90% of the dose of radio-iron, while the normally growing rats absorbed less than one-third. Absorption took place in both the small and large intestine. There was a relatively high uptake of radio-iron by the intestinal wall, although only traces were excreted into the lumen. After injection, a large part of the dose of radio-iron was taken up by the bone marrow and used for haemoglobin synthesis. The turnover in the marrow was rapid, with a half period of only one or two days. Increased haemoglobin formation in the marrow was shown in iron-depleted rats, in growing rats,

in adult rats given polycythaemic doses of cobalt, and in adult rats after blood loss. None of the usual signs of copper deficiency were evident when the radio-iron was administered orally to the anemic iron-depleted rats reared on a milk diet, owing to the considerable copper content of the milk. However, when the radio-iron was injected, simultaneous administration of copper increased the rate of iron utilization and diminished the storage in the liver, thus providing a sensitive test of latent copper deficiency. The liver was found to be the chief site of iron storage, the amount of radio-iron stored being greatest when the dose was injected intravenously and least after oral administration. Liver storage was also greatly decreased when the radio-iron was being actively utilized in haemoglobin synthesis by stimulated bone marrow. A rapid rate of turnover in the small intestine was observed, which may be associated with its role in regulating absorption.

### Milk Proteins.

R. J. BLOCK AND D. BOLLING (*Archives of Biochemistry*, August, 1946) have analysed mother's milk and cow's milk proteins for nitrogen, arginine, histidine, lysine, tyrosine, tryptophane, phenylalanine, cystine, methionine, threonine, leucine, iso-leucine and valine. Pooled samples of such proteins differ noticeably in only two amino acids (cystine and methionine), the essential acid being methionine. However, the totals of the sulphur amino acids of both human and cow's milk proteins are approximately equal. It would appear from a consideration of amino acid data only, that human milk proteins are not nutritionally superior to the proteins of cow's milk.

### Gramicidin.

H. S. OLCOTT *et alii* (*Archives of Biochemistry*, August, 1946) have esterified the hydroxyl groups of methylol gramicidin with succinic anhydride and obtained a product, the sodium salt of which is completely water-soluble even in the presence of other ions. This is in contrast to unmodified gramicidin, which is so insoluble in aqueous media that its usefulness is greatly limited. This new product has approximately 25% of the antibacterial activity, 1% to 5% of the in-vitro haemolytic activity and only 2% of the toxicity of gramicidin.

### Tooth Decalcification.

J. F. BIERI *et alii* (*Archives of Biochemistry*, September, 1946) have shown that drinking of an acetic acid and sucrose solution of pH 2.6 for one to two weeks produced mild to moderate etching of rats' molars. Orange juice of pH 3.7 decalcified the teeth severely in two weeks. Solutions of phosphoric acid and lactic acids of pH 4.5 caused no etching when given for two weeks. Investigation of the permanent teeth of dogs drinking a phosphoric acid and sucrose solution of pH 2.6 for 180 days revealed etching of the enamel similar to that found earlier on the deciduous teeth. Low levels of fluorine in the acid decreased the extent of tooth decalcification. Investigation of the deciduous and permanent teeth of dogs drinking citric acid and sucrose solution of pH 2.6 revealed etching of the tooth enamel. Two dogs ingesting solutions containing twenty parts per million of fluorine had bone fluorine levels considerably higher than those of control dogs receiving solutions without

fluorine. Consumption for one month of 165 millilitres per day of phosphoric and citric acid solutions of pH 2.6 produced noticeable erosion of the deciduous teeth of young monkeys.

### Fatty Acid Oxidation.

A. LEHNINGER (*The Journal of Biological Chemistry*, September, 1946) has shown that rat heart muscle suspensions are capable of the oxidation of higher saturated fatty acids, a reaction which requires the presence of adenine nucleotide and simultaneous fumarate oxidation. Extra succinic acid accumulates as the end product of fatty acid oxidation in these preparations when succinic dehydrogenase is inhibited by malonate. Analytical data show that the extra succinate which accumulates accounts quantitatively for the fatty acid oxidized if it is assumed that 2-carbon fragments from the fatty acid combine with oxalacetate to form tricarboxylic acid and ultimately succinate. Citrate and aceto-acetate do not accumulate during the oxidation of the fatty acid. Aceto-acetate, however, is readily oxidized by the preparation with the formation of extra succinate. Acetate forms neither aceto-acetate nor succinate. The results strongly suggest that both fatty acid oxidation and aceto-acetate oxidation proceed through the krebs tricarboxylic acid cycle in heart muscle suspensions.

### Adrenal Cortical Function.

R. D. HEARD *et alii* (*The Journal of Biological Chemistry*, October, 1946) have shown that urinary reducing power (as indicated by estimations of neutral, lipid-soluble reducing substances) and adrenal cortical function can be correlated. After adrenalectomy in the dog, the excretion of reducing metabolites falls to approximately 33% of the normal value, and after the administration of adrenal cortical or of anterior lobe extract to the intact animal, the output is increased two or three times. In clinical cases of adrenal hypofunction (panhypopituitarism) and hyperfunction (in Cushing's syndrome, and during stress) the daily excretion is respectively one-third of normal and two to five times normal. Marked parallelism is observed in all instances between the output of reducing substances and that of biologically active metabolites, which cause deposition of glycogen in the liver of the adrenalectomized mouse (urinary "cortin").

### Thiourea Action.

K. P. DUBOIS AND W. F. ENVAY (*The Journal of Biological Chemistry*, October, 1946) have shown that phenylthiourea,  $\alpha$ -naphthylthiourea, allylthiourea, thiourea and thiouracil inhibit tyrosinase. The most effective inhibitors are the most toxic to rats. The inhibition was not influenced by the particular substrate employed. The inhibition can be prevented by iodine or copper, but cannot be reversed by these substances. Alpha-naphthylthiourea and related compounds are effective inhibitors of the oxidation of ascorbic acid as catalysed by inorganic copper. This inhibition can be prevented by an increase in the copper concentration in the system. None of the thiourea derivatives studied inhibit the cytochrome oxidase or succinic dehydrogenase of lung or liver tissue of rats given lethal doses of the compounds. High concentrations of the compounds are necessary to inhibit these enzymes *in vitro*.



## British Medical Association News.

### ANNUAL MEETING.

THE annual meeting of the Queensland Branch of the British Medical Association was held at B.M.A. House, Wickham Terrace, Brisbane, on December 13, 1946, Dr. J. G. WAGNER, the President, in the chair.

### ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council which had previously been circulated among members was taken as read on the motion of Dr. A. E. Lee, seconded by Dr. Horace Johnson.

In the discussion on the report Dr. A. Fryberg drew attention to the annual grant of £1,000 given by the State Government to the University of Queensland for post-graduate medical education, to which no reference had been made in the report. It was resolved on the motion of Dr. A. V. Meehan, seconded by Dr. H. W. Horn, that the grant to the university should be mentioned. The report as amended was adopted on the motion of Dr. Norman Sherwood, seconded by Dr. H. W. Horn. The report submitted to the meeting is as follows:

The Council has pleasure in presenting the following report of the work of the Branch for the year ending November 15, 1946.

### Membership.

The membership of the Branch is 685 and 2 complimentary members, as against 641 and 3 complimentary members in 1945, making a total gain of 43 members. There are also 67 honorary associate members, 4 of whom were elected during the year.

The gains were: new members 34; transfers from other Branches 33; members reinstated 5.

The losses were: members transferred to other Branches 23; struck off 1; deceased 5.

### Obituary.

The Branch has sustained a loss by death of the following members: Dr. J. E. Streeter, Brisbane; Dr. G. E. B. Clayton, Pomona; Dr. G. H. Vernon, Papua; Dr. A. F. Kelly, Southport.

### Honours Conferred.

Since last annual report, information has been received of the following honours conferred upon members of the Branch for war service: Lieutenant-Colonel Donald A. Cameron, O.B.E.; Lieutenant-Colonel Leslie G. Hill, O.B.E.; Major Clarence A. C. Leggett, M.B.E.; Surgeon Lieutenant D. C. Jackson, D.S.C.; Major Noel M. Gutteridge, E.D.; mentioned in dispatches, Lieutenant-Colonel Donald A. Cameron, Major T. K. Durbridge, Captain A. J. McSweeney, Flight Lieutenant Charles Roe. Letters of congratulations were sent to these members.

### Meetings.

In addition to the annual meeting, ten general meetings of the Branch were held during the year, including two clinical meetings; also a special general meeting called for the purpose of repealing By-Law 52 (1), "Commencement of Practice during War Period". The average attendance was thirty-nine.

### Council.

Twenty-three Council meetings were held. The record of attendances of the Council is as follows:

Dr. J. G. Wagner (President) .. .. .	22
Dr. H. W. Johnson (President-Elect) .. .. .	19
Dr. H. W. Horn (Past President, Honorary Treasurer, Federal Council Representative) ..	21
Dr. Norman Sherwood (Honorary Secretary) ..	21
Dr. Felix Arden (Chairman of Committees) ..	20
Dr. J. G. Morris (Honorary Secretary of Committees) .. .. .	17
Dr. H. W. Anderson (Councillor) .. .. .	20
Dr. R. V. Adamson (Councillor) .. .. .	17
Dr. T. V. Stubbs Brown (Councillor) <sup>1</sup> .. .. .	11
Dr. E. W. Casey (Councillor) .. .. .	16
Dr. D. Gifford Croll (Councillor) .. .. .	20
Dr. Milton Geaney (Councillor) .. .. .	18
Dr. Alan E. Lee (Councillor and Federal Council Representative) .. .. .	17

<sup>1</sup> Leave of absence.

Dr. F. W. R. Lukin (Councillor) .. .. .	16
Dr. W. H. Steel (Councillor) .. .. .	19
Dr. Evan Thompson (Councillor—elected January 25, 1946) .. .. .	11
Dr. Lorimer Walker (Councillor—elected February 22, 1946) .. .. .	17
Dr. L. P. Winterbotham (Councillor) .. .. .	16
Dr. T. A. Price (Councillor—resigned January 25, 1946) .. .. .	—
Dr. C. C. Minty (Councillor—resigned February 22, 1946) .. .. .	4

### Scientific.

*February.*—Dr. H. Flecker: "Plants and Animals Responsible for Injuries to Man in Tropical Queensland."

*March.*—Clinical meeting in conjunction with the Brisbane Hospital Clinical Society.

*April.*—Dr. B. L. W. Clarke: "Deficiency Diseases in a Japanese Prisoner-of-War Camp." Dr. Noel M. Gutteridge: "Nutrition in Clinical Medicine."

*May.*—Dr. A. E. F. Shaw: "Blood and Serum Transfusions, with Particular Reference to Serum Protein Estimations."

*June.*—Dr. Holmes & Court: "Functional Disability Sequent to Organic Disease" (the Bancroft Oration).

*July.*—Dr. S. F. McDonald, Dr. E. O. Marks, Dr. D. Gifford Croll and Dr. Felix Arden: "Looking Backward—A Quarter Century of Paediatrics."

*August.*—Dr. Alan E. Lee: "The Constitution and Policies of the Federal Council."

*September.*—Professor E. S. Meyers: "A Diamond Jubilee, 1886-1946" (Jackson Lecture).

*October.*—Clinical meeting in conjunction with the Mater Misericordiae Public Hospital Clinical Society.

*November.*—Dr. W. E. E. Langford: "Medical Problems of Repatriation."

### Office Bearers and Councillors.

Dr. Horace Johnson was elected president-elect for the ensuing year and Dr. Norman Sherwood was reelected honorary secretary.

The following office bearers were elected by the Council: *Honorary Treasurer:* Dr. C. C. Minty (resigned), Dr. H. W. Horn appointed.

*Chairman of Committees:* Dr. C. C. Minty (resigned), Dr. H. W. Horn appointed.

*Honorary Secretary of Committees:* Dr. J. G. Morris.

*Honorary Librarian:* Dr. Neville G. Sutton.

*Assistant Honorary Librarian:* Dr. Konrad Hirschfeld.

Dr. Thos. A. Price resigned from the Council in January, as owing to personal reasons he was unable to come to Brisbane for meetings. In accepting his resignation with deep regret the Council recorded its warm appreciation of the valuable services given by him to the association in the past. Dr. Price remains an honorary vice-president of the Branch.

Dr. Evan Thomson was elected to fill the vacancy.

Dr. C. C. Minty also tendered his resignation as honorary treasurer and chairman of committees in January in view of his pending departure to Melbourne. In accepting his resignation with regret the President congratulated him upon his promotion in the Repatriation Commission.

Dr. E. Lorimer Walker was elected to fill the vacancy on the Council.

Dr. D. Gifford Croll is not seeking reelection for 1947, and the Council wishes to record its appreciation of the valued service rendered by him during the past 27 years.

### Ethics Committee.

At the annual meeting of the Branch held on December 14, 1945, the following were elected members of the Ethics Committee: Dr. M. Graham Sutton, Dr. L. J. J. Nye, Dr. S. F. McDonald, Dr. J. J. Power, D.S.O., Dr. R. G. Quinn, Dr. J. G. Avery, Dr. G. P. Dixon, C.B.E., V.D. The *ex-officio* members of the Ethics Committee consist of the president, president-elect, the honorary treasurer and the honorary secretary for the time being in office.

No meetings of the committee were held during the year.

### Library.

During the year 122 books were borrowed by seventy-six members. *The British Journal of Pharmacology and Chemotherapy* and *Thorax* have been added to the library, also copies of "Annex to Reports upon Overseas Visits, 1945-46", by Douglas H. K. Lee, and catalogues of documents. *The British Journal of Social Medicine* has been ordered for delivery when available. The following additions have been made to the library during the year: "Trousseau Clinical

Medicine", Volumes I and II; "Synopsis of Medicine", by H. Letheby Tidy; "A Descriptive Atlas of Radiographs of the Bones and Joints", by A. P. Bertwhistle; "Occupational Tumors and Allied Diseases", by W. C. Hueper, M.D. Arrangements are being made for additional bookshelves for the library.

#### Representation.

The Branch was represented as follows during the year:  
**Council of the British Medical Association.**—Dr. Isaac Jones.  
**Federal Council of the British Medical Association in Australia.**—Dr. H. W. Horn and Dr. Alan E. Lee.  
**British Medical Association Representative Meeting in London.**—Dr. F. J. Booth.  
**Federal Council Contract Practice Committee.**—Dr. L. P. Winterbotham.  
**Australasian Medical Publishing Company, Limited.**—Dr. D. Gifford Croll, director, Dr. T. A. Price and Dr. Alan E. Lee, members.  
**Medical Assessment Tribunal.**—Dr. A. H. Marks.  
**Queensland Medical Board.**—Dr. D. Gifford Croll, Dr. J. G. Wagner, Dr. R. G. Quinn.  
**Medical Officers' Relief Fund (Federal).**—Queensland Committee, Dr. D. Gifford Croll, Dr. G. P. Dixon, Dr. W. H. Steel.  
**Post-Graduate Medical Education Committee.**—Dr. S. F. McDonald, Dr. Alan E. Lee, Dr. Felix Arden.  
**Queensland Institute of Medical Research.**—Dr. W. H. Steel.  
**Queensland Radium Institute.**—Dr. Alan E. Lee.  
**Queensland Nutrition Council.**—Dr. P. A. Earnshaw, Dr. Noel M. Gutteridge.  
**Queensland Bush Nursing Association.**—Dr. L. Bedford Elwell.  
**Queensland Council of Social Agencies, Board of Studies.**—Dr. G. B. V. Murphy.  
**Flying Doctor Service of Australia.**—Dr. Harold Crawford.  
**Red Cross Blood Transfusion Service Committee.**—Dr. Milton Geaney.  
**Red Cross Society Appeal Committee.**—Dr. L. J. J. Nye.  
**The Surf Life Saving Association of Australia, Queensland State Centre.**—Dr. F. W. R. Lukin.  
**Physical Fitness Association of Queensland.**—Professor E. S. Meyers and Dr. Harold Crawford.  
 The Editor of THE MEDICAL JOURNAL OF AUSTRALIA was represented by Dr. Felix Arden.

#### War Emergency Organization.

##### Rehabilitation of Members of the Armed Forces.

Satisfactory arrangements have been made for the provision of hospital experience for members returning from service with His Majesty's Forces, and special post-graduate courses were arranged throughout the year by the Queensland Post-Graduate Medical Education Committee.

With the object of assisting in the replacement of ex-service medical officers in civil practice, members of the Branch were circularized to ascertain likely assistantships or partnerships available, and where possible the two parties were brought together.

Two of our ex-service members, Dr. Wilfred J. Simmonds and Dr. C. P. B. Mann, have been awarded travelling scholarships, the former the Nuffield Dominion Demonstratorship in Physiology and the latter the Australian Red Cross Travelling Scholarship.

##### Queensland Medical War Benefit Fund.

In March last it was decided to continue the scheme for a further period of six months, and it has now been finally wound up. This fund provided valuable financial assistance during the war years to medical officers in the services, and a debt of gratitude is due to the Queensland Trustees, Limited, and their manager, Mr. M. S. Herring, for help given in carrying out the secretarial work. The trustees of the fund were Dr. J. G. Wagner, Dr. F. W. R. Lukin, Dr. J. G. Avery, Dr. Milton Geaney, Professor J. V. Duhig.

##### Federal Medical War Relief Fund.

To date the Queensland Branch has donated a total of £1,295 14s. 6d. to this fund from 138 members, which includes an amount of £133 7s. from the Downs and South Western Medical Fund.

The trustees of the Federal Medical War Relief Fund are the same as the trustees of the Queensland Medical War Benefit Fund.

The trustees of this fund are now in a position to receive applications for assistance from persons who are eligible for its benefits. Application forms are available from the Branch office or from members of the Local Committee of Management.

"War service" has been defined as "full-time service with the armed forces of the British Empire".

#### War Casualties.

So far as can be ascertained, nine Queensland medical officers lost their lives as a result of enemy action, or of sickness contracted whilst serving in the armed forces.

#### By-Law 52 (1): Commencement of Practice During War Period.

At a special general meeting called for the purpose on May 10, 1946, it was resolved that By-Law 52 (1) be repealed.

#### Appreciation of Medical Profession.

Through the president of the Federal Council, the Commonwealth Minister for Health expressed appreciation of the valuable assistance given by the medical profession to the community during the war period.

#### Queensland Medical Coordination Committee.

As a result of the cessation of hostilities, this committee ceased its existence in April, 1946, in common with the lifting of various wartime restrictions.

The thanks of the Council are due to Dr. F. W. R. Lukin, who acted as representative of the Branch on this committee.

#### Rationing.

**Liquid Fuel Supplies.**—Although the petrol position has eased considerably, the subcommittee appointed to deal with the requirements of metropolitan members has still continued to function. The personnel of the subcommittee is Dr. L. P. Winterbotham, chairman, Dr. A. G. Anderson, Dr. J. G. Avery, Dr. Alec Paterson, with the assistance of Mr. F. K. Davis.

**Linen for Doctors' Surgeries.**—With the assistance of a sub-committee, which acts as a liaison between the Rationing Commission and doctors, members are able to obtain necessary supplies and replenishments of linen for their surgeries. The committee consists of Dr. L. P. Winterbotham, Dr. J. G. Avery and Dr. Alec Paterson, and the secretarial work is carried out by Mr. F. K. Davis.

#### Repatriation Commission.

**Medical Benefits for Dependents of Deceased Soldiers of the 1939 War.**—Owing to insufficient number of doctors having signified their willingness to undertake this work, it has been impossible to implement the agreement in Queensland, notwithstanding the fact that members of the Branch have been circularized on several occasions and asked to submit their names. The names of all members who have agreed to participate in providing this service to date have been forwarded to the Repatriation Commission, but more are required. The terms and conditions are very similar to lodge service.

**Local Medical Officers: Out-Patient Treatment.**—An alteration has been made in the previous policy of the Repatriation Commission, and local medical officers, both for country districts and in metropolitan areas of capital cities, will be compiled from all registered medical practitioners who are natural born British subjects or naturalized British subjects, who are willing to accept appointment as local medical officers and abide by the conditions of appointment. Application should be made direct to the Deputy Commissioner of Repatriation.

**Form M.F. 9A.**—On the recommendation of the Queensland Branch to the Federal Council an increase in the fee for Repatriation Form M.F. 9A to £1 1s. was secured.

#### Organization Subcommittee.

**Personnel.**—Dr. Alan Lee, Dr. D. Gifford Croll, Dr. E. W. Casey, Dr. H. W. Anderson, Dr. T. V. Stubbs Brown and the *ex-officio* members of the Council.

This subcommittee is vested with power to take action in matters which come before it, provided they are not questions of policy or of a controversial nature.

Twenty-three meetings were held during the year and recommendations were made to the Council on matters which were not dealt with directly by the subcommittee.

The following are some of the important matters considered by the Organization Subcommittee.

**Workers' Compensation Acts: Schedule of Medical Fees.**—A member of the Council has been appointed to act as liaison officer between the Council and the Insurance Commissioner.

On the whole the schedule of fees agreed upon between the Council and the Insurance Commissioner is working satisfactorily. A few anomalies have been brought to the notice of the Council, and in one of these it was deemed necessary to obtain legal advice to have the position

clarified, namely, the charging of fees in lengthy cases in excess of the limit of £25 provided in the schedule. The matter is still under consideration. Another question under discussion is increased payment by the Insurance Commissioner for "out of hours" treatment of injured workers where necessary, for which no provision is made in the schedule.

In a small number of cases in which extra skill and time have been involved, the Commissioner has paid fees in excess of the schedule, but the payment of such extra fees is entirely at his discretion.

The Commissioner has also accepted the principle that accounts for medical fees will be met in cases where the injured worker does not claim compensation, after having confirmed the fact that the claim is compensable.

During the year one case of excess fees charged by a doctor for a workers' compensation case was referred to the Medical Fees Tribunal. A finding was given that the fee charged was higher than was warranted.

A group of medical officers attached to a country lodge concurred in the alteration of their agreement, as a result of which workers' compensation cases would cease to be within the ambit of the agreement and doctors would render accounts direct to the Insurance Commissioner. This action was regarded by the Commissioner as being contrary to the act, and he refused to pay the accounts.

As the agreement was altered without the sanction of the Council, which is necessary in accordance with the by-laws of the Branch relating to lodge contract practice, the Council instructed the members to take steps to delete from the amended agreement the offending clause, which action has been taken.

**By-Laws and Advertising.**—During the war years a certain amount of latitude regarding advertising was permitted, but members have been circularized and reminded of the restrictions under the by-laws.

**Sickness and Accident Insurance.**—The list of diseases mentioned in many insurance policies are considered by the Council to be obsolete and a revised schedule was drawn up and submitted to the State Government Insurance Commissioner for comment by whom the matter has been referred to the Underwriters' Association for consideration.

**Receptionists in Doctors' Surgeries.**—In an application by the Federated Clerks' Union for an amendment of the clerks' award to have doctors' receptionists included under its provisions, the Industrial Arbitration Court decided to exclude such employees from this award. Although the Council opposed their inclusion under the clerks' award, it considers that these employees should have some protection, and expressed its willingness to assist in any movement made by them towards this end. So far no action has been taken by the receptionists.

**Indemnity Insurance.**—Through the Medical Defence Society of Queensland arrangements have been made for indemnity insurance by the London and Counties Medical Protection Society to provide cover. Members may obtain full information on the subject from the Medical Defence Society of Queensland.

#### Public Health.

**Ether.**—Following on a Press report of a statement made by the Minister for Health and Home Affairs entitled "Warning on Impure Ether", it was ascertained that a circular had been issued to hospital boards giving the result of examination of some samples of ether by the Government Analyst which were found to be impure in that they contained aldehyde *et cetera*. Reference was also made to the importance of storage, and it was stated that ether should not be used if it has been removed from the original container for more than twenty-four hours.

It was decided by the Council to refer the matter to various authorities, including the Society of Anaesthetists, and ask for comments as to (a) rate of degeneration and (b) practical risk involved in the everyday use of exposed ether. The result of our inquiries is awaited with interest.

**Immunization against Pertussis.**—With the object of making a survey regarding the position, members of the Branch were circularized and asked to report any case of whooping cough in any immunized child, with particulars, where possible, as to the date and type of immunization. A subcommittee was subsequently appointed to deal with the replies from members reporting cases occurring after immunization, the personnel being Professor J. V. Duhig and Dr. Felix Arden. All replies were favourable, but insufficient data were received to allow of a statistical report being compiled.

**Supplies of Penicillin.**—At the request of the Council, the Brisbane and South Coast Hospitals Board and the Mater

Misericordiae Hospital agreed to make supplied of penicillin available to medical practitioners during week-ends and on holidays for emergency cases.

**Anterior Poliomyelitis: Exhibition of Kenny Film.**—During the recent visit of Miss Elizabeth Kenny to Brisbane arrangements were made for an exhibition of her film to members of the Branch, and members of the local branch of the Australian Physiotherapy Association were also invited.

#### Hospital.

**Hospital Accommodation.**—An endeavour was made to deal with the shortage of accommodation in hospitals, mainly due to limited nursing and domestic staff, and at the invitation of the Council of Progress Associations conferences were held to consider the question.

The importance of establishing community hospitals in which local residents could take an interest was stressed. This suggestion is to be placed before local associations.

Several more private hospitals have closed owing to lack of staff, and with a view to helping the position, a syndicate composed of doctors and nurses is negotiating for the purchase of premises to be established as a private hospital in Brisbane.

On May 23 last the president invited members of the Branch interested in the establishment of a private hospital to attend a meeting to discuss the proposal and the above is the outcome.

**Convalescent Homes.**—A list of convalescent homes in Brisbane is being compiled for sending to members. The use of convalescent homes whenever possible is advisable as a means of releasing beds in hospitals more urgently needed for acute cases.

**Hospital Benefits Act, 1945.**—This act has been implemented in Queensland and most hospitals have consented to conform to the act which provides a payment of 6s. per day for all patients, irrespective of their means, but also causes a great deal of clerical work for the hospital for which no recompense is made, owing to the fact that the honorary system has been practically abolished in Queensland. The act has not the same effect as in other States.

At the invitation of the president, Father McMally, secretary of the Roman Catholic Hospitals Association of Australia, gave an address to the Council on the hospital position in the Commonwealth with special reference to the subsidies being paid under the *Hospital Benefits Act*. The whole question of medical service in public hospitals is receiving the attention of the Federal Council.

**Rockhampton Hospital.**—A part-time paid medical service is to be introduced into the Rockhampton Hospital. A conference with representatives of the Rockhampton Local Association took place, and the opinion was expressed by the Council that the appointment of a part-time paid staff is a step in the right direction under present circumstances, but the appointments suggested by the Rockhampton Hospitals Board do not provide adequate service for the public in Rockhampton.

**Salaries of Resident Medical Officers.**—The Public Service Commissioner has drawn up a schedule of salaries for resident medical officers, and it has come to the knowledge of the Council that a hospital which was not aware of the new rates was paying amounts below the fixed salaries. On being approached by the Council, the Hospitals Board concerned made retrospective adjustments in salaries both with regard to present resident medical officers and also those who had left the employment of the Board since the date that the new rates came into force.

**Annual Leave for Medical Superintendents.**—As it was the practice for many hospital boards to require the medical officer to provide a locum tenens at his own expense when going on annual recreation leave, this question was taken up with the Department of Health and Home Affairs, who approved of the following ruling of the Council:

The medical superintendent shall be entitled to four weeks' leave on full salary for each year's service with the Hospital Board, provided that such holidays shall not, without the express permission of the Board/Committee testified by a resolution in that behalf, be allowed to accumulate beyond eight weeks in all, and provided that where a locum tenens is required, in the case of a full-time medical officer the Board/Committee shall pay for the services of a locum tenens, and where a medical officer is allowed the right of private practice, a pro rata arrangement shall be made between the hospital authority and the medical officer to share the expense of the locum tenens.

We are pleased to record that all the hospital boards concerned have accepted this ruling when approached by the Council.



## Lodges.

**Joint Committee.**—This committee is still functioning, and representatives of the British Medical Association are Dr. L. P. Winterbotham, Dr. Thos. A. Price, Dr. H. W. Horn and Dr. F. W. R. Lukin.

**Metropolitan Capitation Fee.**—The rate computed on the sliding scale by the Government Statistician for the metropolitan area which came into force on July 1, 1946, was 34s. per adult male member.

**Stabilization of Lodge Capitation Fee for Country Areas.**—A formula has been worked out for the stabilization of the capitation fee in country districts which is based on various local conditions. Pending its acceptance by the Queensland Friendly Societies Association, a minimum rate of 34s. has been introduced in many centres in conformity with the metropolitan rate and method of computation. As this was an increase on the ruling capitation fee, which varied from 25s. to 30s., an approach had to be made to the Prices Branch, and permission for the increase in each case has been granted.

**Commonwealth Form of Agreement.**—No finality has been reached in this agreement, and negotiations are still taking place between the Federal Councils of the British Medical Association and Friendly Societies in Australia.

## Building Subcommittee.

**Proposed New Premises for the Branch.**—The Council has authorized the Building Subcommittee to explore the possibility of erecting suitable premises on the Wickham Terrace site, and architects' sketch plans were drawn up and exhibited at the last annual meeting of the Branch. Owing to the difficulty in obtaining building materials *et cetera*, it is impossible to proceed further with the project at present.

The personnel of the Building Subcommittee is: Dr. D. Gifford Croll, Dr. S. F. McDonald, Dr. M. Graham Sutton.

## Medical Fees Tribunal.

**Personnel.**—Dr. G. P. Dixon (chairman), Dr. Alan E. Lee (honorary secretary), Dr. J. G. Wagner, Dr. S. F. McDonald, Dr. H. S. McLelland, Dr. D. Gifford Croll. Only one meeting was held during the year at which two cases referred by the Council were dealt with. In one case the finding given was, "that the fee charged was fair and just", but in the second case it was found that the fee charged was higher than was warranted *et cetera*.

## Local Associations.

A conference of local associations of the British Medical Association and members of the Council was held on June 5, 1946, at 2.30 p.m. The Editor of THE MEDICAL JOURNAL OF AUSTRALIA, Dr. Mervyn Archdall, was also present.

This was the first conference to take place for a number of years owing to the war, and it was attended by a representative gathering of country members. Representatives were present from the following: Townsville, Mackay, Rockhampton, Longreach, Charleville, Bundaberg, Gympie, Ipswich. Apologies were received from the Downs and South Western Local Association and the Cairns Local Association.

Discussion took place regarding hospital matters, *The Pharmaceutical Benefits Act*, general medical service, *Workers' Compensation Acts*, schedule of medical fees, lodge capitation rates, advertising, post-graduate study and library facilities.

## Affiliated Local Associations.

## Townsville Local Association.

The proceedings of the year have been as follows:

March 28, 1946. General meeting *re* lodge capitation fee *et cetera*.

April 25, 1946. Annual meeting. Election of officers. Lecture by Mr. T. U. Ley.

May 20, 1946. Usual monthly meeting *re* lodge capitation fee and formation of a clinical society.

August 8, 1946. General meeting.

August 22, 1946. Lecture by Dr. A. G. Cooper on interpretation of X-ray films (chest) and lecture by Mr. D. Robertson, physicist, on various factors in X-ray technique.

September 5, 1946. Clinical meeting.

September 18, 1946. Lecture by Dr. A. Quale and Dr. L. O. Walters.

September 19, 1946. Annual dinner.

September 26, 1946. Lecture. Dr. Grealish Stanford, United States of America. Aspects of growth in children.

October 3, 1946. Lecture by Mr. T. U. Ley on fractured femur and results thereof. Demonstration of clinical cases at the Townsville General Hospital.

L. HALBERSTATER,

Honorary Secretary.

## Cairns Local Association.

I have to report that during the past year only one meeting of this sub-branch of the British Medical Association was held. Dr. Athol Quayle was the visiting speaker and his address was much appreciated by local members.

At the annual meeting on the ninth instant the following elections were made: President, Dr. A. M. Langan; Secretary, Dr. C. H. Knott. The members are looking forward to further post-graduate lectures in the future and hope to arrange more regular meetings.

C. H. KNOTT,

Secretary.

## Maryborough Local Medical Association.

The Maryborough sub-branch has again been revived following the cessation of war. Office bearers for 1945-1946: President, Dr. A. J. Kennedy; Honorary Secretary, Dr. O. E. Nothing.

Seven meetings have been held during the year. The lodge capitation fee has been stabilized at 34s. for 1946-1947 in accordance with the Wage Index Formula. It is hoped to arrange regular clinical meetings for the forthcoming year.

O. E. NOTHING,

Honorary Secretary.

## Bundaberg Local Association.

We have to submit report as follows for the past year relative to the Bundaberg Local Association.

The number of members is now five; formerly it numbered six. Office bearers: President, Dr. E. T. C. Schmidt; Honorary Secretary, Dr. I. C. Hains.

We have held regular meetings throughout the year. There is nothing of an important nature to report as to these meetings. We were represented in Brisbane at the meeting of June 5, 1946, at which various matters were discussed by local association representatives and the Council for Queensland. Dr. L. McKeon was our representative.

In April, 1946, the honorary staff of the Bundaberg General Hospital—including all our members—was dismissed by the Bundaberg Hospitals Board. The occasion was a complete change of system and also a part of the general staff. A full-time medical staff has been appointed. This hospital, however, has a number of private wards to which we have access and members of the association attend their private patients there. We had sometime earlier foreseen the possibility of difficulty, and have been fortunate that we were able to see the opening of a Mater Misericordiae Hospital late in July. This is a private institution only and is a boon to public and profession alike.

We thank the Council for their good work this year, and for the manner in which we are kept in touch as to current events. We feel, too, that the unofficial newsletters are greatly appreciated.

I. C. HAINS,

Honorary Secretary.

## Downs and South Western Medical Association (Toowoomba).

I hereby wish to present our annual report for the period under review. For various reasons our annual meeting has been held at a later date than has been customary on previous occasions, but perhaps with a better ultimate result in being able to organize more fully.

Our meetings, general and executive, have been held to deal with the winding up of the Downs and South Western Medical Fund which was forwarded to the Federal Medical War Relief Fund. Another of our meetings was held with particular reference to the *Workers' Compensation Act*, with regards to some financial aspects as it affected particularly the insured lodge patient. Much information was given by Dr. Wagner, Dr. Horn and Dr. Lukin and the position of the insured lodge members was placed by the medical officers as to how it concerned them.

Our activities have not been very extensive this year, as in all the war years, but we have at least made a good beginning to revive what was once a very alive organization, and look to the recently discharged medical officers and newer members to bring fresh knowledge and enthusiasm into our midst. Most pleased to see Dr. Price.

We again thank Dr. C. R. Morton, who has extended to us the courtesy in allowing us to hold executive meetings at his rooms and particularly for his secretarial work which at times has been carried on under great difficulties.

Office bearers for 1946: President, Dr. A. S. Furness; President-Elect, Dr. J. G. M. Beale; Honorary Secretary, Dr. Glen Hickey, junior; Treasurer, Dr. J. Hulme; Honorary Auditors, Dr. V. Woodhill and Dr. C. R. Morton.

V. R. WOODHILL,  
President.

#### Rockhampton Local Association.

**Part-Time Scheme, Rockhampton Hospital.**—This scheme will operate in October, 1946. As it is the first scheme to be introduced outside the Brisbane area, it will be watched with interest. The local association was most anxious to "do the right thing" and has had every action approved by the Council. The scheme is not ideal, but we are led to believe it will be altered at a later date.

**Post-Graduate.**—Some very fine addresses have been delivered by visiting lecturers. The attendances are good, and it is hoped the Post-Graduate Committee can continue to send such stimulating lecturers.

The local association would like to express its thanks for the hearing our representatives have been given when they attended Council meetings.

The following office bearers were elected for the ensuing year: President, Dr. F. C. Wooster; Vice-President, Dr. R. P. Rundle; Honorary Secretary, Dr. W. D. Exton.

W. D. EXTON,  
Honorary Secretary.

#### Ipswich and West Moreton Local Association.

Owing to the exigencies of medical practice in wartime, and the few doctors available, meetings of the local association in Ipswich had suffered a lapse of some years prior to 1946.

Early in this year a dinner was given by the president to inaugurate the renewal of regular meetings and clinical discussions which were a feature of the local association prior to the war. The dinner was well attended by local members, and also by a large galaxy of metropolitan members.

Since that date, there have been regular monthly meetings of the local association to discuss local matters. We have been fortunate in having visiting speakers to address us at most of these meetings. They have always been most welcome, and discussion is often animated. It is hoped that visiting speakers will be available for future meetings, as their presence stimulates local members to keep themselves abreast with recent ideas.

H. G. WILSON,  
Honorary Secretary.

#### Royal Australasian College of Surgeons, Queensland.

Members of the Branch were invited to attend the annual meeting of the Royal Australasian College of Surgeons, Queensland, on June 25, at which a lecture was given by Mr. H. R. G. Poate, President of the Royal Australasian College of Surgeons, on "The Control and Treatment of Thyreotoxicosis".

#### Monthly Newsletter.

The Publicity Committee has carried on the newsletter which was commenced during the war into its peace activities, and it has proved a useful means of keeping members in touch with current local medical affairs.

#### British Medical Agency of Queensland Proprietary, Limited.

Activities carried out during the first post-war year have been, in addition to the normal spheres of action, concentrated on helping members in their return to civil life. The thanks received from many members indicate their appreciation of the assistance offered and accepted.

The manager, Mr. S. N. Cobbold, toured the northern coastal portion of the State early in the year, thereby creating a closer liaison between the country and the capital city.

A successful financial year is reported.

#### Federal Council.

Two meetings of the Federal Council were held during the year, on March 5 (Sydney) and November 12 (Adelaide), at which the Branch was represented by Dr. H. W. Horn and Dr. Alan E. Lee.

**The Pharmaceutical Benefits Act.**—Now that the Federal Government has obtained a mandate from the people in

regard to its social service activities, the proposed implementation of *The Pharmaceutical Benefits Act* will be resuscitated. Nevertheless the association will still maintain its previous attitude of non-cooperation under the present terms of the act, in view of the Commonwealth Government's refusal to meet any of the objections raised by the Federal Council.

**General Secretary's Visit to London.**—The General Secretary, Dr. John Hunter, left for London in April last to attend the Special Representative Meeting of the British Medical Association in order to ascertain the views of the profession in regard to the British Government's proposals for a national medical service. During his absence, Dr. W. F. Simmonds attended to the affairs of the Federal Council.

The information obtained by Dr. Hunter will be of great value to the profession in Australia.

#### University of Queensland.

**British Medical Association (Queensland Branch): Queensland Medical Students' Loan Fund.**—The personnel of the committee of administration is as follows: Dr. C. A. Thelander (chairman), Professor H. J. Wilkinson, Professor E. S. Meyers, Professor Alex Murphy, Dr. Arnold Robertson, a representative of the University of Queensland Medical Society (nominated annually by the society) and the *ex-officio* members of the Council.

The fund now stands at £424 6s. 6d., and during the year £3 18s. was donated by medical students and £42 6s. 6d. by members of the Branch.

**Faculty of Medicine.**—In May last, chairs of medicine and surgery, half-time, were established in the University of Queensland, and the former lecturers in these subjects, Dr. Alex Murphy and Dr. Neville G. Sutton, respectively, were appointed as acting professors.

The Dean of the Faculty of Medicine, Dr. E. S. Meyers, has also been appointed acting professor of tropical medicine and hygiene in place of Sir Raphael Cilento, who has gone to America as Director of Refugees and Displaced Persons in United Nations Organization.

**Post-Graduate Medical Education Committee.**—This is ostensibly a joint committee of the British Medical Association and the university. The British Medical Association representatives are Dr. S. F. McDonald, Dr. Alan E. Lee and Dr. Felix Arden. A statute was duly drawn up to cover the joint control, but from the association's point of view it did not function very satisfactorily. With the approval of the senate an amendment is being made which should rectify the position.

Dr. Keith Moore has been appointed secretary of the committee in place of Dr. P. H. Macindoe, who occupied this appointment previously and did very good work in arranging courses of post-graduate study for ex-service medical officers in addition to the usual routine courses.

The Council wishes to place on record its appreciation of the valuable service given by Dr. Macindoe to the Queensland Post-Graduate Medical Education Committee, particularly in regard to the rehabilitation of ex-servicemen.

**University of Queensland Medical Society.**—Dr. W. H. Steel is the liaison officer between the Branch Council and the society.

**Prizes.**—The following prizes for 1946 were awarded to the winners by the president at the Jackson Lecture held on September 6: Harold Plant Memorial Prize, 1946, to John Halford Grant; Memorial Prize of the British Medical Association, 1946, to James Ernest Clements.

With the approval of the trustees, the Eustace Russell Memorial Prize has been merged into the Memorial Prize for members of the Queensland Branch of the British Medical Association where the necessary qualifications are fulfilled.

William Nathaniel Robertson Medal, 1946. Advice was received from the Registrar of the University of Queensland that this medal was won by James Ernest Clements.

#### "The Medical Journal of Australia."

The Council and members of the Branch were pleased to extend a welcome to the Editor, Dr. Mervyn Archdall, who paid an official visit to the Branch in June last.

Owing to industrial trouble in the printing trade in New South Wales, the publication of the journal was suspended in September, 1946, but was resumed on December 22. Continuity of the journal was preserved by the publication of a composite issue.

#### Bancroft Oration.

The oration in memory of Joseph Bancroft was delivered by Dr. Holmes à Court on Friday, June 7, in the Medical School Hall, his subject being "Functional Disability Sequent

to Organic Disease". A vote of thanks to the lecturer was moved by Professor Alex Murphy, seconded by Professor John Bostock, and carried by acclamation.

The Joseph Bancroft Memorial Medal was presented to the lecturer by the president.

#### Jackson Lecture.

On Friday, September 6, 1946, the sixteenth Jackson Lecture was delivered by Professor E. S. Meyers in the Medical School Hall, entitled "A Diamond Jubilee, 1886 to 1946". Prior to the lecture the following presentation of prizes was made by the president: Harold Plant Memorial Prize, 1946, John Halford Grant; British Medical Association Memorial Prize, James Ernest Clements.

#### Social.

**British Medical Association Annual Ball.**—This function was held at Lennon's Hotel on June 5, and as it was the first of its kind since the commencement of war, it was a very popular and enjoyable event.

The committee responsible for its success was the honorary secretary, Dr. Norman Sherwood, Dr. Horace Johnson and Dr. Felix Arden.

Apart from the social aspect, the ball also proved a financial success and a surplus of £25 was donated to the Medical Students' Loan Fund.

**Council Dinners.**—Two dinner parties were given by the Council during the year, one on February 27 to bid farewell to Dr. C. C. Minty prior to his departure for Melbourne.

At the second dinner on June 7 members of the Council entertained the Bancroft orator, Dr. Holmes & Court, and other guests, including visiting lecturers for the post-graduate course, Dr. Officer Brown and Dr. C. H. Flitts, Dr. S. F. McDonald, chairman of the Queensland Post-Graduate Medical Education Committee, Dr. Mervyn Archdall, Editor of THE MEDICAL JOURNAL OF AUSTRALIA, Dr. Ellis Murphy, representing the State Committee of the Royal Australasian College of Physicians, and Dr. J. J. Power, chairman of the State Committee of the Royal Australasian College of Surgeons.

**Golf and Bowls Competition.**—It is hoped to resume these annual competitions between members of the medical, dental and pharmaceutical associations which were discontinued during the war years.

Dr. F. W. R. Lukin and Dr. C. E. Tucker are looking after the golf and bowls respectively for the British Medical Association.

#### British Medical Association Memorial Roll.

It has been decided by the Council to provide a loose-leaf volume for the Branch Memorial Roll, with pages suitably designed for each entry containing a short record of the member commemorated. So far the Council has had some difficulty in obtaining an acceptable design for the pages. The matter is still under consideration.

#### Office Staff.

Miss Jean Allen, who had been a valued member of the staff for over eight years, resigned her position in June to be married. The Council made suitable recognition of her services.

Mrs. F. Tiffin was appointed as assistant secretary to take the place of Miss Allen.

#### Finance.

Perusal of the balance sheet shows that the financial position of the Branch is sound, and adequate provision has been made for all normal commitments in the immediate future. Members should be particularly gratified over the buoyancy of the organization fund which will almost certainly be called upon to meet increased organization expenses of the Federal Council when the Commonwealth Government resumes activity in pursuance of its health policy. The establishment of such a fund, rather than the collection of money by repeated appeals to the profession, has already proved its worth.

#### Conclusion.

During the year the Council has dealt with a large volume of business, and members of the Council and committees have given considerable time and effort in the interests of the Branch.

As compared with some previous years, all was relatively quiet on the medico-political front in 1946, but members may be sure that during the next year or two their solidarity will be fully tested. They are reminded that they hold the keys of the future of medicine within their hands.

Many members have returned from the services to resume their civilian duties. To these their fellow members extend a warm welcome, together with the hope that their rehabilitation will be rapid and complete.

By the death of Professor Marshall Allan, M.C., M.D., F.R.C.S. (Edinburgh), and Mr. R. G. Groom the Queensland Branch has lost two very good friends. Professor Marshall Allan was formerly honorary secretary of the Branch, and continued to be interested in Queensland medical affairs until his death. Mr. R. G. Groom was Branch auditor for over thirty years, and the firm of Messrs. R. G. Groom and Company, Chartered Accountants (Aust.), continues in that capacity.

No annual report would be complete without reference to our office staff, all members of which have continued to serve the Branch with zeal and efficiency in accordance with the standard set by our invaluable secretary, Mrs. Spooner, to whom indeed we owe a very great debt.

(Signed) J. G. WAGNER,  
President.

#### BALANCE SHEET AND FINANCIAL STATEMENT.

The balance sheet and financial statement for the year ended November 15, 1946, were taken as read and adopted on the motion of Dr. H. W. Horn, seconded by Dr. L. P. Winterbotham. The statements are published herewith.

Dr. A. E. Lee expressed the opinion that insufficient funds were set aside for library expenditure, and he moved that it should be a recommendation to the Council that the funds allocated for library purposes should be materially increased in the ensuing year. The motion was seconded by Dr. H. W. Horn and carried.

#### ELECTION OF VICE-PRESIDENT.

The President presented to the meeting the following resolution which had been unanimously carried by the Council at its meeting on November 22, 1946:

That Dr. D. Gifford Croll be nominated by the Council for election as a vice-president at the annual meeting in recognition of the valuable service given by him to the Branch during the past twenty-seven years.

Dr. A. E. Lee moved that the Council's resolution should be adopted by the annual meeting. The motion was seconded by Dr. L. P. Winterbotham and supported by Dr. H. W. Horn, Dr. W. H. Steel and Dr. Horace Johnson. The motion was carried unanimously and Dr. D. G. Croll responded.

#### ELECTION OF OFFICE-BEARERS.

The President announced the results of the election of office-bearers and members of the Council:

President: Dr. Horace Johnson.  
President-Elect: Dr. Norman Sherwood.  
Past President: Dr. J. G. Wagner.

Councillors: Dr. R. V. Adamson, Dr. H. W. Anderson, Dr. Felix Arden, Dr. T. V. Stubbs Brown, Dr. E. W. Casey, Dr. Milton Geaney, Dr. Glen V. Hickey, Dr. H. W. Horn, Dr. A. E. Lee, Dr. Harold Love, Dr. F. W. R. Lukin, Dr. R. G. Quinn, Dr. W. H. Steel, Dr. L. P. Winterbotham.

#### ETHICS COMMITTEE.

Dr. J. G. Avery, Dr. D. Gifford Croll, Dr. G. P. Dixon, Dr. L. J. J. Nye, Dr. J. J. Power, Dr. S. F. McDonald and Dr. M. Graham Sutton were elected members of the Ethics Committee.

#### ELECTION OF AUDITORS.

Messrs. R. G. Groom and Company were reelected auditors for the ensuing year on the motion of Dr. L. P. Winterbotham, seconded by Dr. H. W. Steel.

#### MEMORIAL ROLL.

The President then read the list of members on the Memorial Roll of the Branch.

#### INDUCTION OF PRESIDENT.

Dr. J. G. Wagner then inducted to the chair the incoming president, Dr. Horace Johnson, who delivered an address.

#### VOTES OF THANKS.

Votes of thanks were passed to the retiring president and Council, the honorary secretary and the office staff for their work during the year.



QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.  
(INCORPORATED.)

Balance Sheet as at November 15, 1946.

LIABILITIES.						ASSETS.							
	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
Fixed—							Fixed—at cost, less depreciation—						
Loan from Queensland Medical Land							Land and Buildings—B.M.A. House ..	2,382	2	3			
Investment Co. Limited .. ..				4,650	0	0	Library .. ..	150	0	0			
Current—							Typewriters, Bookcases, Balopticon						
Subscriptions for Remittance to:							and Furniture .. ..	76	11	5			
British Medical Association, London	36	19	6				Bancroft Medals and Collar .. ..	4	10	0			
Australasian Medical Publishing											2,613	3	8
Company Limited, Sydney ..	26	5	0				Queensland Medical Land Investment						
				63	4	6	Co. Ltd.—5,950 shares of £1 each						
Association Funds—							paid to 10s. each, at cost ..	2,975	0	0			
Accumulation Account .. ..	6,128	16	5				British Medical Agency of Queensland						
Sinking Fund .. ..	402	2	5				Proprietary Limited—257 shares						
Reserve for Entertainments ..	32	15	3				of £1 each, fully paid, at cost ..	257	0	0			
				6,563	14	1					3,232	0	0
							Australasian Medical Publishing Com-						
							pany Limited—5% Debentures, at				55	0	0
							cost .. ..						
											5,900	3	8
							Current—						
							Australian Consolidated Inscribed						
							Stock, at cost—						
							3½% maturing 1959 £1,500						
							3½% maturing 1960 £300				1,800	0	0
							English, Scottish and Australian Bank						
							Ltd.—Credit Balance .. ..	2,709	6	4			
							Sundry Debtors .. ..	449	0	0			
							Electric Light Deposit .. ..	6	0	0			
							Cash .. ..	10	6	2			
											4,974	12	6
							Sinking Fund Investments—						
							Australian Consolidated Inscribed						
							Stock—						
							£280 3½% maturing 1951, at cost ..	278	3	3			
							£90 3½% maturing 1960, at cost ..	90	0	0			
							Commonwealth Savings Bank, Bris-						
							bane—Credit Balance .. ..	33	19	2			
											402	2	5
											£11,276	18	7

We have compared the above Balance Sheet with the Books, Accounts and Vouchers of the Queensland Branch of the British Medical Association (Incorporated) and have obtained all the information and explanations we have required. The Register of Members and other records which the Association is required to keep by the Companies Acts of 1941-42, or by its Articles, have, in our opinion, been properly kept.

In our opinion, the Balance Sheet is properly drawn up to exhibit a true and correct view of the state of the Association's affairs as at 15th November, 1946, according to the best of our information and the explanations given us, and as shown by the books of the Association.

R. G. GROOM & COMPANY,  
Chartered Accountants (Aust.),  
Auditors.

(Sgd.) H. W. HORN,  
Hon. Treasurer.

Brisbane, 18th November, 1946.

QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.  
(INCORPORATED.)

Revenue Account for Twelve Months ended November 15, 1946.

EXPENDITURE.						INCOME.							
	f	s.	d.	f	s.	d.		f	s.	d.	f	s.	d.
November 15, 1946.							November 15, 1946.						
To Branch Expenses .. .. .	1,091	3	9				By Branch and Organization Fund						
" Library Expenditure .. .. .	79	6	3				Subscriptions .. .. .				2,343	9	0
" Depreciation of Office Equipment ..	7	19	0				" B.M.A. House—						
				1,178	9	0	Rents .. .. .	376	11	0			
" Federal Council—							Less Expenses—						
Contribution to Organization Expenses ..				321	8	6	Rates, Land Tax, In-						
" Net Surplus for year—							surance and repairs £148	5	9				
Transferred to Accumulation Account ..				1,012	2	0	Cleaning .. .. .				80	0	0
							Depreciation .. .. .				46	8	6
											274	14	3
							" Interest—						
							Commonwealth Government In-						
							scribed Stock .. .. .	58	10	0			
							Australasian Medical Publishing						
							Company Limited Debentures	2	15	0			
							" Sale of Nutrition Pamphlets ..						
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QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.  
(INCORPORATED.)

GENERAL FUND.

Statement of Receipts and Payments for Twelve Months ended November 15, 1946.

RECEIPTS.				PAYMENTS.			
£	s.	d.		£	s.	d.	
November 16, 1945.				November 15, 1946.			
To Funds at November 16, 1945—				By Amounts remitted on account of			
E.S. & A. Bank Ltd.—				Subscriptions Collected to—			
Current Account .. .. .				British Medical Association,			
Cash in hand .. .. .				London .. .. .			
	1,478	3	11	Australasian Medical Publishing			
	4	3	9	Company Limited, Sydney ..			
			1,482	.. .. .			
November 15, 1946.				.. Federal Council—			
To Subscriptions—				Contribution to Expenses .. ..			
Queensland Branch Subscriptions				.. .. .			
Organization Fund, Queensland				Branch Expenses—			
Branch .. .. .				Salaries, Audit and Honoraria ..			
For remittance to British Medical				Postages and Duty Stamps .. ..			
Association, London .. .. .				Printing and Stationery .. .. .			
For remittance to THE MEDICAL				Bank Charges, Meeting Expenses			
JOURNAL OF AUSTRALIA, Sydney				and Sundries .. .. .			
	623	0	0	Telephone Expenses .. .. .			
			3,823	Travelling Expenses .. .. .			
.. General—				Lighting .. .. .			
Rents—				.. .. .			
British Medical Agency				.. .. .			
of Queensland Pty.				B.M.A. House Expenses—			
Ltd., part payment				Rates to December 12, 1946 ..			
of arrears .. .. .				Cleaner's Wages, Insurance and			
£453 0 0				Repairs and Maintenance .. ..			
Queensland Medical				State Land Tax .. .. .			
Finance Pty. Ltd.,				.. .. .			
part payment of				.. .. .			
arrears .. .. .				General—			
13 0 0				Expenses re Entertainments ..			
Basement, Garage and				Library Expenditure .. .. .			
Room .. .. .				Donation to Medical Students Loan			
30 11 0				Fund—ex Reserve for Enter-			
Australasian Trained				tainments .. .. .			
Nurses' Association				.. .. .			
29 0 0				.. .. .			
Medical Defence Society				Funds at November 15, 1946—			
5 0 0				E.S. & A. Bank Ltd., Brisbane ..			
Entertainments .. .. .				Cash in hand .. .. .			
535 11 0				.. .. .			
Interest on Commonwealth In-				.. .. .			
scribed Stock .. .. .				.. .. .			
273 10 3				.. .. .			
Sale of Nutrition Pamphlets ..				.. .. .			
58 10 0				.. .. .			
Australasian Medical Publishing				.. .. .			
Company Limited—Interest on				.. .. .			
Debentures .. .. .				.. .. .			
2 15 0				.. .. .			
			875	.. .. .			
			16	.. .. .			
			£6,181	.. .. .			
			19	.. .. .			
			2	.. .. .			
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the Palestinians, Dr. Grzybowski (Poland), Dr. Brock (South Africa), Dr. Knutson (Sweden), and Dr. Leuch (Switzerland). It was noticeable that France, Czecho-Slovakia, Spain and Belgium held much in common and had rather narrower views than had the United Kingdom, Canada and the Scandinavians. Egypt was also on the broad-minded side and had a good delegate in Professor Shawki Bey.

**Proceedings: Background.**—For a number of years the only international medical organization has been the "A.P.I.M." with its headquarters in Paris, of which Dr. Decourt has been the indefatigable general secretary for over twenty years. Dr. Alfred Cox (a one-time secretary of the British Medical Association) was one of the founders and worked hard for it. For some time the British Medical Association has felt that it would be wise to establish an international, or rather world, medical association on a wider basis than the "A.P.I.M.". On June 6, 1945, a meeting of the International Relations Committee of the British Medical Association was held in London at which were present by invitation representatives from the "A.P.I.M.", Belgium, France, Holland, Poland, the United States of America, Yugoslavia and the International Labour Office. It was then decided to call the present conference.

**Details of Meetings.**—The President welcomed the delegates, speaking first in French and repeating his remarks in English. After paying a graceful compliment to the "A.P.I.M.", he explained why the conference was held in London: (i) the British Medical Association had been long interested in international organizations; (ii) it had suffered less than many of the countries represented; and (iii) it had already set aside a sum of £1,000 to send lecturers on medical subjects abroad, in conjunction with the British Council. He appealed for medical books for devastated libraries and referred to the British Medical Association's new abstracting service. Dr. Hill followed in a like strain.

A general discussion then took place as to what should be dealt with first. (i) The need to form an international organization. (ii) The objects of such an organization. Though it was never mentioned, the real question was should "A.P.I.M." be continued and perhaps expanded or should something bigger and wider take its place. My Spanish neighbour was good on this point. He argued that the presence of so many medical men who had come from so many countries at great inconvenience proved that a new organization was needed. It was a sound statement. Things got a bit confused, when suddenly Dr. Pridham (United Kingdom) proposed that the conference recommend the formation of a new international organization. This was seconded and quickly put to the meeting and went through without a dissentient voice and rather to everyone's surprise. The fun then began again with the "objects". The "A.P.I.M." stressed the "professional" side of medical problems, and France, Belgium, Spain and Czecho-Slovakia were in favour of limiting the work of the new organization to this aspect. The British Commonwealth-Scandinavian bloc was for a wider scope. Subjects mentioned were scientific work, settlement of displaced doctors (especially Jews), medical ethics, social medicine, "strengthening the bulwarks of medicine to prevent mass murder under the guise of research as had been done recently in a certain country", distribution of the world's population, raising the status of doctors and helping the medical profession to oppose enslavement by the State. The debate went on mainly among the non-English-speaking delegates, but Dr. Routley (Canada), who had been a delegate to the preliminary meetings of the World Health Organization, pleaded for a wide scope which would allow working in with the World Health Organization. His line of thought is outlined in a paper he had drawn up and which had been circulated. The functions of the World Health Organization and the United Nations Economic Security Council Organization are set out in a paper by "A.P.I.M.". Things were getting warm when the chairman adjourned for tea, during which some quiet consultation went on between the British Empire delegates. On resuming, first Dr. Hill and later Dr. Cox produced a formula which endeavoured to draw together the various ideas and suggestions, and the French-Belgium group finally agreed that these should be vague and general so as to meet future developments. These formulae were circulated to delegates later and the meeting closed for the day.

On resuming next day, Dr. Chisholm, the interim chairman of the World Health Organization, endeavoured to allay the suspicions held by France and Belgium of that organization and said that "W.H.O." would not interfere in domestic affairs of countries. This cleared the air, and after some minor alterations and regrouping the final objects of the new organization and means to attain them were decided on unanimously. The choice of name came next, and

World Medical Association was decided on, though many of us would have preferred World Federation of Medical Associations as being more descriptive.

Membership of the World Medical Association was a knotty point and bristled with difficulties. Was the biggest medical organization in any country to be the only one eligible for membership? Palestine came to their feet here. Switzerland was a problem, as she has three medical associations all about the same size and constituted as to whether the members speak French, Italian or German as their main language. The United Kingdom people thought doctors, other than members of the British Medical Association, should not be debarred from joining. Persia also had some misgivings on the majority qualifications. It was finally decided that as an organizing committee would have to be appointed to work out a lot of detail, the qualification for membership should be delegated to them to solve, with the proviso that all medical organizations represented at this conference had the right to membership of the World Medical Association.

The question of voting at conferences or general meetings of all members was not easy, particularly as it was not known how many constituent members the World Medical Association would have. It was decided that only delegates would be allowed to vote, though observers could take part in discussions. Finally "country or territory" was made the basis. Thus if country A (France) had only one constituent member and country B (Persia) had the highest number of constituent members, say five, then each Persian vote would count as one and the single French vote would count as five.

Subscription was discussed, and the "A.P.I.M." rate was taken as a basis, but with the proviso that owing to the after effects of the war and consequent impoverishment of all countries the amount should be halved. This works out as follows: Medical associations with a membership of under 10,000 to pay 10 Swiss centimes per member. Medical associations with a membership of over 10,000 to pay 5 Swiss centimes per member. The maximum amount to be paid by any medical association to be 1,500 Swiss francs. (Franc equals 1s. 6d. Australian.)

This subscription is a temporary measure only and will come up for review at the next conference.

It was agreed that the governing body should be the annual gathering of delegates or representatives. It was suggested that each member organization should be allowed to send two delegates, and it was left to the organizing committee to work out a plan to retain the equal voting power for each country or territory outlined above.

The meeting on the last morning was rather informal and very cheerful. The relationship to "A.P.I.M." had been settled to the satisfaction of all parties and due honour had been paid to it.

It was agreed that a certain number of appointments should be made on a temporary basis, all of which would come up for review at the next conference. An organizing committee of nine (9) members was elected with instructions to draw up a draft constitution and by-laws for presentation to the next conference. This committee will also draft the minutes of the present conference. Those elected were: Dr. T. C. Routley (Canada), Dr. I. Shawki Bey (Egypt), Dr. O. Leuch (Switzerland), Dr. D. Knutson (Sweden), Dr. J. A. Pridham (United Kingdom), Dr. F. Decourt (France), Dr. L. Tornel (Spain), Dr. A. Zahor (Czecho-Slovakia), Dr. P. Glorieux (Belgium), with Dr. C. Hill (United Kingdom) and Dr. Cibré (France) as joint secretaries, but without a vote.

Dr. Leuch (Switzerland) was appointed Honorary Treasurer and Paris was suggested as the meeting place for the next conference, the date of such conference to be left to the organizing committee.

The remaining business was rather sombre.

Denmark reported that in connexion with the War Crimes Commission a list was being drawn up of the names of German doctors who had broken all canons of medical behaviour. France said that they were preparing a similar "black book". Poland stressed the number of their medical men who had lost their lives as a result of German occupation. Palestine brought up again the question of refugee doctors the world over, and Austria pointed out that they had more doctors than were needed and who would be willing to go to other countries.

The conference then closed with many sincere expressions of thanks to the British Medical Association and its officers.

**Social Events.**—There were two lunches and one dinner and all were enjoyable. Before the conference opened on Wednesday afternoon a lunch was given by the British



Medical Association staff to the dominion. Elre included, delegates. Sir Hugh Lett was in the chair and it was a very pleasant function. My seat was near Dr. Flack (*British Medical Journal*), Dr. Walker (Scottish secretary, British Medical Association), Colonel Wallace (New Zealand medical liaison officer), and Dr. Horner (*British Medical Journal*). Three of them I had known before, and I had corresponded with Dr. Horner. He spoke very warmly of Dr. Archdall and several of the others spoke of the value and pleasure of Dr. Hunter's visit. Sir Hugh Lett in his short speech of welcome mentioned how air travel had shortened distance and instanced Dr. Hunter's trip here as a case in point. The same evening a dinner was given by the Council of the British Medical Association to the visiting delegates and observers with some added well-known London medical celebrities of the standing of Lord Moran, Sir Francis Fraser, Sir Alfred Webb Johnson *et cetera*. The outstanding feature at this dinner was a speech by Dr. J. J. Brutel, of the Netherlands, stressing the comfort and strength to resist that was derived in occupied countries from the wireless news broadcast from London. He ended his speech by handing Sir Hugh Lett a specially engraved medal as a token of the admiration and respect held by Dutch medical men towards the British Medical Association. Sir Hugh at once said that this medal would be the first gift to the newly formed World Medical Association.

His Majesty's Government gave an official lunch at the Dorchester Hotel on Thursday, 26th September, with the Minister of Health in the chair. Mr. Aneurin Bevan received the guests and made one of his usual clever and facile speeches with some sly digs at the British Medical Association which Dr. Hill enjoyed immensely. Unfortunately the Minister did not want to hear what Dr. F. Glorieux (Belgium) had to say on State medicine as the latter saw it. My table companions were a Dane and a Swede—a cheerful pair.

**Conclusions.**—The conference was interesting, and I am grateful for being allowed to attend it, even though I was a listener rather than a speaker. General points that impressed me were:

1. The good arrangements and clever handling of discussions. The chairman allowed great latitude and speeches ranged over many and somewhat unrelated topics; then Dr. Hill or someone would produce a formula which would be adopted with minor modifications.
2. The rather narrow view of the French-Belgian group and the much wider outlook of the British-Scandinavian people.
3. The general feeling that "A.P.I.M." was too European in outlook and that what was wanted was a world organization.
4. The gratitude felt by occupied countries to the United Kingdom and to the British Medical Association. On three occasions, quite out of context, Churchill's name came in and was always greeted with applause.
5. The almost universal suspicion of State medicine.
6. The general desire to improve the status of the doctor individually and to raise professional standards.
7. The almost hopeless resignation shown by doctors from some long-occupied countries—notably Poland, Holland and Austria. This contrasted with the fighting spirit of the French.
8. The inherent decency of medical men.

## Correspondence.

### THE ZOOLOGICAL POSITION OF MAN.

SIR: In your journal of January 11, A. A. Abbie goes to some length to defend evolution. It seems strange how often evolution, which after all is only a philosophy, passes as a science.

In the introduction your correspondent mentions the "uninitiated". These I presume are the doctors who read this journal, but have not had a thorough grounding in evolution. Some may have been influenced by "Criticus", but many more are likely to be influenced by Sir A. Keith, who admits the observations that showed the difference between the corpuscles of chimpanzee and those of man. No one has attempted to differentiate races of men by observing their corpuscles.

Under the heading 1, "relationship between man and animal" is mentioned. I would draw your correspondents'

attention to the fact that what we observe in science is seen through the eyes, or in the light of the past training or education that we have received. It is only those who have read widely on evolution and little on the other side of the question that become dogmatic on matters that are based on philosophy and opinion.

Under 2, "Huxley" is mentioned. "Not proven and not provable, must be recorded against the grand hypothesis of the paleontologists respecting the general succession of life on the globe." So writes this philosopher in his "Discourses Biological and Geological", pp. 286, 287.

In reference to 3, 4, 8, the fruit fly (*Drosophila melanogaster*) with which Morgan experimented for 25 years—an aggregate of 600 generations—an equivalent of 20,000 years of mankind. He produced 500 new kinds of mutations. Practically all these were freaks—they could not fend for themselves.

There is no record of mutations that have made a plant or animal more fit to struggle for existence. The Ancon breed of sheep made famous by Darwin had bow legs which prevented them from jumping through fences.

Morgan wrote in his "Scientific Basis of Evolution": "It is not as generally known as it should be that the new work in genetics has struck a blow at the old doctrine of the inheritance of acquired characteristics."

Under 12, "Hooton" is referred to. This author in his book "Apes, Men and Morons" gives facts when he describes how scientists have often treated human remains when they wished to build their theories. Facts and logic seldom influence a false philosophy, and they are less likely to do so if it is parading as a science.

Under 15, the "continuously sexed man" is not so much of a problem as when he is a "continuously sexed animal" under the influence of evolution, with Higher Authority, hope, reward, and punishment portrayed as a myth. A study of the condition of sex in man provides evolution with more questions than answers to its problems.

Under 16. When Darwin gave his appreciation to the wonderful work done on Terra Del Fuego it was not in support of anthropology nor the direction that it gave to the natives. The same applies to the direction of the natives of New Guinea as any unbiased observer will admit after a wide survey of that field.

Under 14, "conclusions sound". A few more facts and less philosophy would prevent them from being only sound in the realm of evolution in most instances. Bateson at the Melbourne meeting of the British Association for the Advancement of Science said: "Modern research lends not the smallest encouragement or sanction to the view that gradual evolution occurs by the transformation of masses of individuals though that fancy has fixed itself on popular imagination."

Under 5, the acquisition of speech is mentioned.

Calman said: "The only conclusion that can be drawn is that the trachea has been acquired at least four times." It takes a great deal of gullibility to swallow all that evolutionists try to tell us about evolution of the voice when it is well known that the soft parts in each and every Neanderthal man were the product of the fertile imagination of some philosopher.

When it is known what kind of treatment Sir Ambrose Flemming received when he attempted to answer some of the false teaching of evolution, perhaps we could not blame "Criticus" for writing under that "pseudonym".

Why are evolutionists so anxious to keep the other side of the question from their students? Why cannot we be allowed to draw our own conclusions from facts instead of being asked to accept without question the word of supposed higher authorities?

129, Melbourne Street,  
South Brisbane,  
Undated.

Yours etc.,  
G. BOYD.

### THE UNIVERSITY AND CLINICAL TEACHING.

SIR: Your editorial and Professor MacCallum's presidential address both refer to the proposed medical school in this State.

I think it time that the Federal Government were to take over medical education in Australia. Comparison of Australian schools with leading schools overseas shows that all the Australian schools are deficient in professors.

Edinburgh, for instance, has professors in practically every branch of medicine. Pharmacology is one of the props of medicine, yet there is not one chair of this subject in

Australia. Leeds University has just appointed a professor in paediatrics at a salary of £2,500 sterling *per annum*, but there are no chairs in this subject in Australia. Harvard, Yale, Oxford and Cambridge all have professors in the main subjects such as medicine and surgery, yet Melbourne and Adelaide do without. Those who say professors in these subjects are unnecessary should remember that Lister was a professor of surgery successively at Glasgow, Edinburgh and London.

The truth is that one good professor in medicine is worth a dozen lecturers. It is fully time that the Federal Government were to help all our starved medical schools and make them worthy rivals of the great schools of Europe and America.

Yours, etc.,

F. W. SIMPSON.

Wembley Park,  
Western Australia,  
January 24, 1947.

#### CHILBLAINS.

SIR: I read with interest the article on chilblains in "Current Comment" in the journal of January 25. I suffered severely with chilblains all my life, except for the ten years that I spent in Queensland. About five years ago I found a remedy which has given great relief both to myself and many patients. I give one cubic centimetre of "Calci-Ostelin" daily, for six days, as soon as chilblains appear, and then continue with the injections three times a week for a further fortnight. Often another six injections are needed during our severe New England winter. I might have thought that advancing age was curing the distressing malady in my own case, but my patients have mostly been young students, school teachers and office workers. Of course, care must be taken to protect the hands from cold, by always wearing gloves of leather or thick fabric. Woollen gloves seem to aggravate the condition. Also feet and ankles should be firmly bandaged with *crêpe* bandages if chilblains occur above the *tendo Achillis*. Shoes must never be tight. An ointment containing oil of gaultheria two drachms and menthol fifteen grains to the ounce of lanoline has relieved the irritation and prevented the chilblains ulcerating.

Yours, etc.,

ELLEN M. KENT HUGHES.

Armidale,  
New South Wales,  
February 3, 1947.

#### THE TREATMENT OF THYREOTOXICOSIS BY CONCURRENT ADMINISTRATION OF THIOURACIL AND IODINE.

SIR: My letter on this subject in your issue of January 11, and my friend Mr. Poate's reply in that of February 1, will at least serve our common purpose of emphasizing the dangers which attend the administration of thiouracil and the other drugs in this group.

I am very sorry that my statement that skilled physicians assisted by biochemists and other laboratory workers were better qualified than I to assess the merits of thiourea, has proved provoking to Mr. Poate. May I remind him that I was referring to the initial scientific investigation in Australia of a new and dangerous form of drug therapy; not to the routine treatment of thyreotoxicosis.

I hasten to add that there is nothing to stop a surgeon or any other member of our profession from straying into the field of pharmacological research, "for wide is the gate and broad is the way". But those who do so and are tempted to publish the fruits of their work should remember that other verse in the Gospel of St. Matthew which reads, "by their fruits ye shall know them".

Yours, etc.,

ALAN NEWTON.

272, Domain Road,  
South Yarra,  
Victoria,  
February 4, 1947.

#### PEPTIC ULCER.

SIR: Dr. McLean's letter and figures (THE MEDICAL JOURNAL OF AUSTRALIA, January 25, 1947) lack clarity in some respects, and so in reply some assumptions must be made as the figures given are not complete. He apparently agrees that replacement and hæmostasis are the aims of treatment in these cases, but then states that they can be achieved by

"gentler means" in a medical ward than in a surgical one. The "gentler means" method proposed is the use of direct transfusion with whole blood which incidentally is usually done in an operating theatre. Of this method there is but one serious criticism, namely, the difficulty of getting enough donors. This is apparent from Dr. McLean's letter as he says that the ninety-two cases entirely so treated were given, on the average, 900 cubic centimetres of blood, whilst the thirty-nine cases given large amounts of blood had citrated as well as whole blood. This latter group required an average of 3,500 cubic centimetres of transfused blood including an average of 1,700 cubic centimetres of whole blood. Thus the complete group which had an average hæmoglobin estimation value of 40% were divided into two classes—one treated with an average of 900 cubic centimetres of blood and another class with an average of 3,500 cubic centimetres. This leads to the conclusion that one group was much worse than the other. From this follows the thought that those treated with an average of 900 cubic centimetres probably had an average hæmoglobin percentage well over 40 and that the other group had an average of well below this figure. This again must be so for 900 cubic centimetres of blood will not raise a hæmoglobin percentage very greatly and would certainly not be enough for any patient whose hæmoglobin was in the neighbourhood of 40%. From this it is probable that most of Dr. McLean's ninety-two patients treated with whole blood were never, at any time, a surgical problem despite the fact that four of them died. One comment in passing is that anyone with experience of secondary hæmorrhage would have grave doubts as to his ability to treat with transfusion a large eroded artery. (W. Hailes, *Australian and New Zealand Journal of Surgery*, Volume XVI, July, 1946, page 39.)

Of the thirty-one patients who were in an apparently worse condition and so given larger quantities of blood than the others, three died, two apparently without an attempt at operative treatment. It is a pity that the patient who died after an operation at which no ulcer was found did not have a gastrectomy (this is assumed though the statement is not definitely made) as this might have saved the patient.

I agree with Dr. McLean's statement emphasizing the importance of blood transfusion in the treatment of hæmatemesis, but would think that it could be given in a surgical ward by a "physician who is able to operate". Should an adequate supply of donors for direct transfusion be available this would be an advantage, but in the majority of cases immediate use of the most readily available supply (the blood bank) has to be made. Even with the best transfusion services available, some patients will still die unless a direct attack is made on the bleeding. I insist that this attempt should be made whilst the patient is in such a condition as to lead one to think there is a reasonable hope of achieving an end, namely, hæmostasis, and not left until it is a desperate try to avoid an imminent disaster. Any machinery such as primary admission to a surgical ward which will facilitate this must be a step in the right direction.

In conclusion I would like to refer Dr. McLean to your "Current Comment" (THE MEDICAL JOURNAL OF AUSTRALIA, January 18, 1947, page 82) on "The Place of Surgery in the Management of Hæmatemesis", in which reference is made to work by Gordon Gordon-Taylor and Owen Wangersteen on the changing attitude to the treatment of hæmatemesis.

Yours etc.,

LEO DOYLE.

45, Spring Street,  
Melbourne, C.1,  
February 1, 1947.

#### EARLY AMBULATION.

SIR: It is now over twelve years since I began early ambulation in the practice of my confinement cases, and I have no occasion whatever to change my practice.

All patients not suffering a temperature are allowed out of bed on the third day and thence progressively each day.

I can assure Dr. Broughton that I have not had to replace any prolapse, and as each patient is examined *per vaginam* before discharge, the number of even retroverted uteri is markedly diminished.

There has been no case of thrombosis in the entire period.

Yours, etc.,

J. LLOYD SIMMONDS.

Wickham House,  
Wickham Terrace,  
Brisbane.  
January 28, 1947.

## Australian Medical Board Proceedings.

### NEW SOUTH WALES.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1939, of New South Wales, as duly qualified medical practitioners:

- Single, Denise Vallack, M.B., B.S., 1946 (Univ. Sydney), Bathurst District Hospital, Bathurst.
- Smith, Charles James Ross, M.B., B.S., 1946 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- Sussman, Ewen, M.B., B.S., 1946 (Univ. Sydney), Sydney Hospital, Sydney.
- Thomas, Ian Davies, M.B., B.S., 1946 (Univ. Sydney), Sydney Hospital, Sydney.
- Thomson, Helen Elizabeth, M.B., B.S., 1946 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- Toakley, James Geoffrey, M.B., B.S., 1946 (Univ. Sydney), Ryde District Soldiers' Memorial Hospital, Eastwood.
- Townsend, Hilda Joy, M.B., B.S. (Univ. Sydney), St. George District Hospital, Kogarah.
- Turner, Leslie Vere, M.B., B.S., 1946 (Univ. Sydney), Mater Misericordiae Hospital, North Sydney.
- Vautin, William Robert, M.B., B.S., 1946 (Univ. Sydney), Sydney Hospital, Sydney.
- White, Kevin Hamilton, M.B., B.S., 1946 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- White, Linus, M.B., 1946 (Univ. Sydney), St. George District Hospital, Kogarah.
- White, Walter Barry, M.B., B.S., 1946 (Univ. Sydney), Marrickville District Hospital, Marrickville.
- Wilcox, George Griffith, M.B., 1946 (Univ. Sydney), Wollongong District Hospital, Wollongong.
- Wiles, Helen Booth, M.B., B.S., 1946 (Univ. Sydney), Parramatta District Hospital, Parramatta.
- Willocks, Ann Hilda, M.B., B.S., 1946 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- Williams, Geoffrey Athol, M.B., B.S., 1946 (Univ. Sydney), Lithgow District Hospital, Lithgow.
- Woodward, William Winslow, M.B., 1946 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- Yeomans, Norma Clyde, M.B., B.S., 1946 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- Young, Alan Andrew, M.B., B.S., 1946 (Univ. Sydney), Sydney Hospital, Sydney.
- Yull, Kenneth Buchanan, M.B., B.S., 1946 (Univ. Sydney), Dubbo Base Hospital, Dubbo.
- Hutchings, Jean Alison, M.B., B.S., 1937 (Univ. Melbourne), Alfredtown, via Wagga, New South Wales.
- Pedersen, Peder Nielsen, M.B., Ch.B., 1910 (Univ. Edinburgh), F.R.C.S., 1922 (Edinburgh), 101, Wanganella Street, Balgowlah, New South Wales.
- Potter, Vernon Wheatley, M.B., B.S., 1941 (Univ. Adelaide), Broken Hill and District Hospital, Broken Hill.
- Seaborn, Rodney Frederick Marsden, M.R.C.S. (England), L.R.C.P. (London), 1946, 414, Edgecliff Road, Woollahra.
- Stewart, John Stewart McKellar, M.B., B.S., 1942 (Univ. Adelaide), Wilcannia.
- Campbell, Clara, M.B., B.S., 1933 (Univ. Queensland), Tea Gardens.
- Cebon, Leon, M.B., B.S., 1944 (Univ. Melbourne), 30, Old South Head Road, Vaucluse.
- Griffiths, Nancy Olive, M.B., B.S., 1942 (Univ. Adelaide), Queanbeyan.
- Manning, Ian Garnet, L.R.C.P. (London), M.R.C.S. (England), 1945, 189, Macquarie Street, Sydney.
- Moore, Harold Robinson, M.B., B.S., 1945 (Univ. Adelaide), District Hospital, Broken Hill.
- Salkeld, Ormond William, M.B., B.S., 1942 (Univ. Sydney), 113, Military Hospital, Concord.

The following additional qualifications have been registered:

- Potts, Gordon Cameron, Base Hospital, Dubbo (M.B., B.S., 1941, Univ. Sydney), Dip. Rad., 1946 (Univ. Sydney).
- Reilly, Charles Patrick Cummerford, 141, Macquarie Street, Sydney (M.B., 1939, Univ. Sydney), Dip. Rad., 1946 (Univ. Sydney).
- Thomas, Alfred Charles, 71, Wondlora Road, Hurstville (M.B., 1915, Ch.M., 1917, Univ. Sydney, F.R.C.S., 1929, Edinburgh), F.R.A.C.S., 1932.
- Berger, Pinkas, 62A, Denning Street, South Coogee (registered in accordance with the provisions of Section 17A of the *Medical Practitioners Act*, 1938-1939), M.B., B.S., 1946 (Univ. Sydney).

Friedman, Icyk Mayer, 234, New South Head Road, Edgecliff, New South Wales (registered in accordance with the provisions of Section 17A of the *Medical Practitioners Act*, 1938-1939), M.B., B.S., 1946 (Univ. Sydney).

Rosenfield, Frederick, 30, Wentworth Street, Dover Heights (registered in accordance with the provisions of Section 17A of the *Medical Practitioners Act*, 1938-1939), M.B., B.S., 1946 (Univ. Sydney).

Rosenman, David Hersch, 164, Smith Street, Summer Hill (registered in accordance with the provisions of Section 17A of the *Medical Practitioners Act*, 1938-1939), M.B., B.S., 1946 (Univ. Sydney).

Stephens, Max, 54, Lyons Road, Drummoyne (registered in accordance with the provisions of Section 17A of the *Medical Practitioners Act*, 1938-1939), M.B., B.S., 1946 (Univ. Sydney).

Marshall, Samuel Simon, 20, Wylde Street, Potts Point (registered in accordance with the provisions of section 17A of the *Medical Practitioners Act*, 1938-1939), M.B., B.S., 1946, Univ. Sydney.

Read, George, c/o Dr. Jean Edwards, 185, Macquarie Street, Sydney (M.B., B.S., 1939, Univ. Sydney), D.T.M., 1944, D.T.H., 1944, Univ. Sydney.

## Post-Graduate Work.

### THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

#### COURSE FOR PART II OF THE DIPLOMA OF LARYNGOLOGY AND OTOTOLOGY.

THE Melbourne Permanent Post-Graduate Committee announces that a small course in subjects allied to laryngology and otology will be conducted for the benefit of candidates for Part II of the Diploma of Laryngology and Otology. The course will be held at the Eye and Ear Hospital at 4.30 p.m. on the following days: March 7, Dr. J. O'Sullivan, "Diagnostic Radiology of Ear, Nose and Throat"; March 11 and 14, Dr. L. B. Cox, "Intracranial Complications of Ear, Nose and Throat Diseases"; March 18, Dr. C. Sutherland, "Allergy in Relation to Ear, Nose and Throat Diseases"; March 25, Dr. F. Shanasy, "The Audiometer and Hearing Aids"; April 1, Dr. R. Kaye Scott, "Indications for Radium and X-Ray Therapy in Ear, Nose and Throat Diseases".

Applications for enrolment should be made to the Secretary, Melbourne Permanent Post-Graduate Committee, College of Surgeons, Spring Street, C.I. The fee for the course is £5 5s. Those entitled to assistance under the Commonwealth Reconstruction Training Scheme are asked to indicate this fact.

### THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

#### Lectures.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that Sir William Fletcher Shaw, visiting examiner for the Membership examination of the Royal College of Obstetricians and Gynaecologists of England, will give two lectures at 8 o'clock p.m., in the Stawell Hall, 145 Macquarie Street, Sydney, as follows: Friday, February 28, "The Manchester Operation"; Wednesday, March 12, "Pre-operative Preparation". All members of the medical profession are invited to be present at these lectures, which form part of the annual general course conducted by the Post-Graduate Committee, details of which are available on application to the Course Secretary, 131, Macquarie Street, Sydney, telephones BW7483, B4606.

## Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

- Shaw, William Robert Morgan, M.B., B.S., 1946 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- Garven, Allison Kinnear, M.B., B.S., 1946 (Univ. Sydney), 20, Beaufort Court, Forbes Street, Darlinghurst.



Lewis, David Herbert, M.B., B.S., 1927 (Univ. Sydney), Honour Avenue, Lawson.  
 Docker, Ernest Brougham, M.B., B.S., 1937 (Univ. Sydney), 193, Bourke Street, Goulburn.  
 Blows, Elizabeth Beryl, M.B., B.S., 1942 (Univ. Sydney), 695, Anzac Parade, Maroubra.

The undermentioned, registered by the Medical Board of Victoria under the provisions of the *Medical Practitioner's Registration Act*, 1946, has applied for election as a member of the Victorian Branch of the British Medical Association:

Gruenfeld, Robert, M.D., (Univ. Vienna), 284 Punt Road, South Yarra, S.E.1.

## Naval, Military and Air Force.

### APPOINTMENTS.

The undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 19, of January 30, 1947.

#### ROYAL AUSTRALIAN AIR FORCE.

##### Citizen Air Force: Medical Branch.

The appointments of the following Flight Lieutenants are terminated on demobilization: C. Rowe (267155), 17th December, 1946; J. J. Connolly (263899), 20th December, 1946.

## Obituary.

### HERBERT CRICHTON McDOUALL.

We regret to announce the death of Dr. Herbert Crichton McDouall, which occurred on February 3, 1947, at Warrawee, New South Wales.

### JOHN PATRICK TANSEY.

We regret to announce the death of Dr. John Patrick Tansey, which occurred on February 10, 1947, at Bellevue Hill, New South Wales.

## Medical Appointments.

Dr. J. B. G. Muir has been appointed to the Board of the Hobart Public Hospitals District under *The Hospitals Act*, 1918, of Tasmania.

Dr. A. H. Lendon has been appointed honorary surgeon at the Royal Adelaide Hospital, Adelaide.

Dr. J. R. Barbour and Dr. N. J. Bonnin have been appointed honorary assistant surgeons at the Royal Adelaide Hospital, Adelaide.

Dr. A. Gild, Dr. T. D. Kelly and Dr. G. W. Verco have been appointed honorary clinical assistants (surgical section) at the Royal Adelaide Hospital, Adelaide.

Dr. E. McLaughlin has been appointed honorary physician at the Royal Adelaide Hospital, Adelaide.

Dr. J. M. Bonnin and Dr. J. L. Hayward have been appointed honorary assistant physicians at the Royal Adelaide Hospital, Adelaide.

## Books Received.

"A Manual of Tomography", by M. Weinbren, B.Sc. (S.A.), M.R.C.S. (England), L.R.C.P. (London), F.R.C. (London), D.M.R.E. (Cambridge); 1946. London: H. K. Lewis & Co. Ltd. 10" x 7½", pp. 278, with 397 illustrations. Price: 45s. net.

"Buchanan's Manual of Anatomy", edited by F. Wood Jones, D.Sc. (London, Adelaide and Melbourne), M.Sc. (Manchester), M.B., B.S. (London), F.R.S., F.R.C.S. (England), assisted by E. L. Patterson, M.D., B.Sc. (Manchester), T. E. Barlow, M.D. (Manchester), M.R.C.S., L.R.C.P., S. Mottershead, M.D., B.Sc. (Manchester), F.R.C.S. (England), F. R. Wilde, M.B., Ch.B., B.Sc. (Manchester), F.R.C.S. (England), and Jessie Dobson, M.Sc., B.A. (Manchester); Seventh Edition; 1946. London: Baillière, Tindall and Cox. 9" x 6", pp. 1628, with 895 illustrations. Price: 45s.

"Intracranial Complications of Ear, Nose and Throat Infections", by Hans Brunner, M.D.; 1946. Chicago: The Year Book Publishers, Inc. 9½" x 6½", pp. 456, with many illustrations. Price: \$6.75.

"Penicillin: Its Properties, Uses and Preparations", published by direction of the Council of the Pharmaceutical Society of Great Britain; 1946. London: The Pharmaceutical Press. 8½" x 5½", pp. 208, with illustrations. Price: 10s. 6d.

"The Diabetic A B C: A Practical Book for Patients and Nurses", by R. D. Lawrence, M.A., M.D., F.R.C.P. (London); Ninth Edition; 1946. London: H. K. Lewis & Co. Ltd. 8½" x 5½", pp. 88. Price: 4s. net.

## Diary for the Month.

- FEB. 17.—Victorian Branch, B.M.A.: Finance Meeting.  
 FEB. 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
 FEB. 20.—Victorian Branch, B.M.A.: Executive Meeting.  
 FEB. 25.—New South Wales Branch, B.M.A.: Ethics Committee.  
 FEB. 26.—Victorian Branch, B.M.A.: Council Meeting.  
 FEB. 27.—South Australian Branch, B.M.A.: Clinical Meeting.  
 FEB. 28.—Queensland Branch, B.M.A.: Council Meeting.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

**New South Wales Branch** (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

**Victorian Branch** (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

**Queensland Branch** (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

**South Australian Branch** (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

**Western Australian Branch** (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

## Editorial Notices.

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